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With which is incorporated The Institution of Aeronautical Engineers

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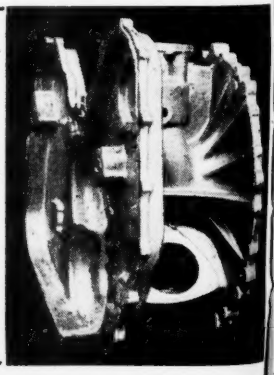

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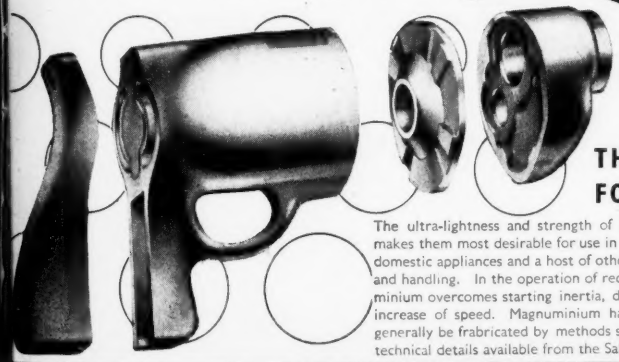

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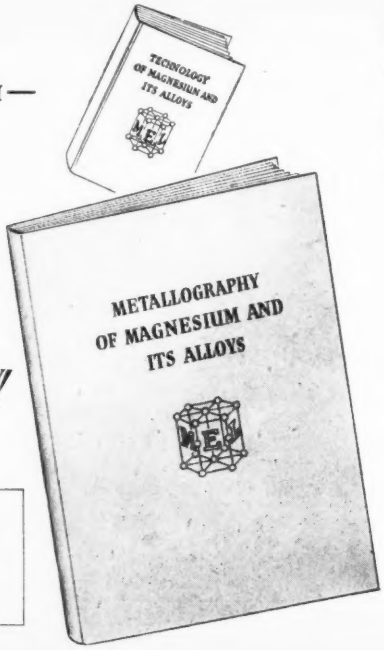

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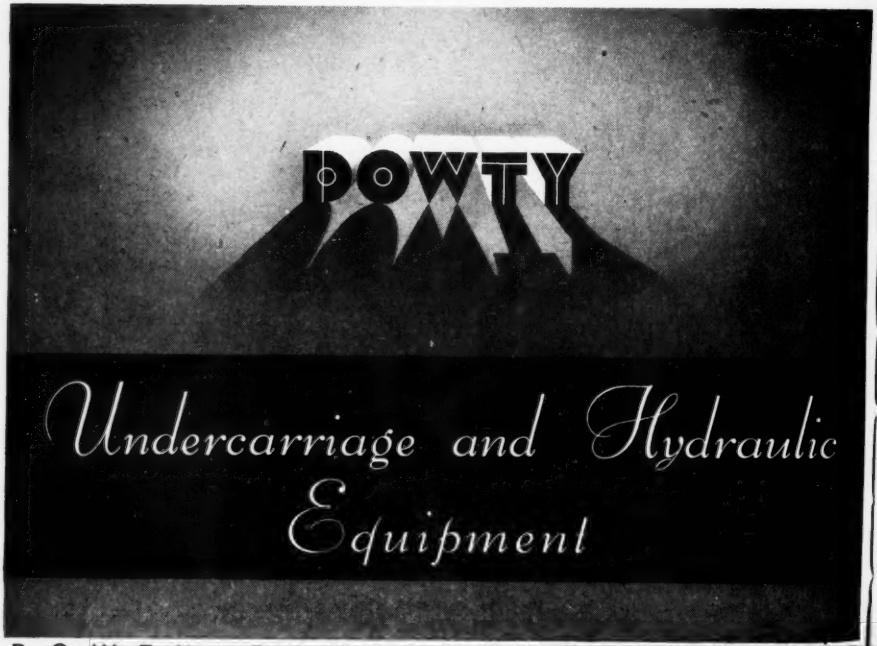

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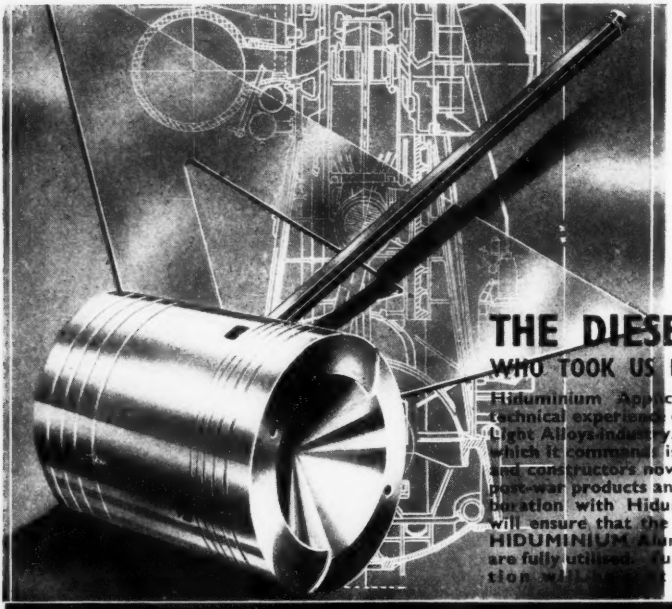

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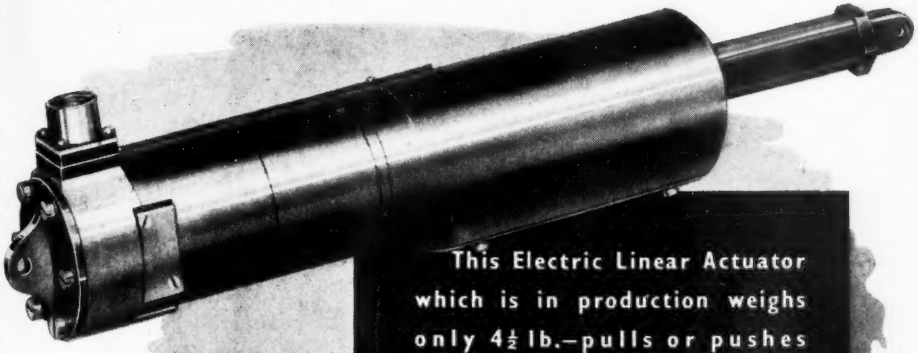

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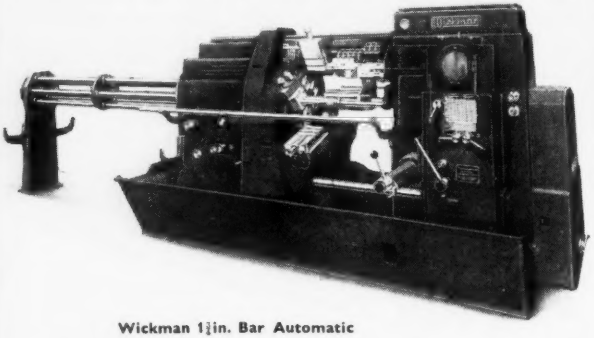

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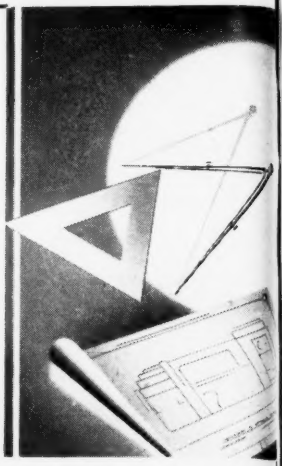

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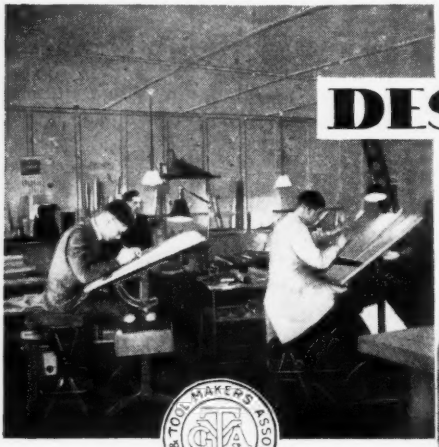

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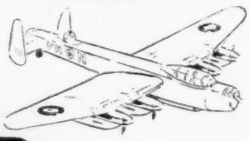

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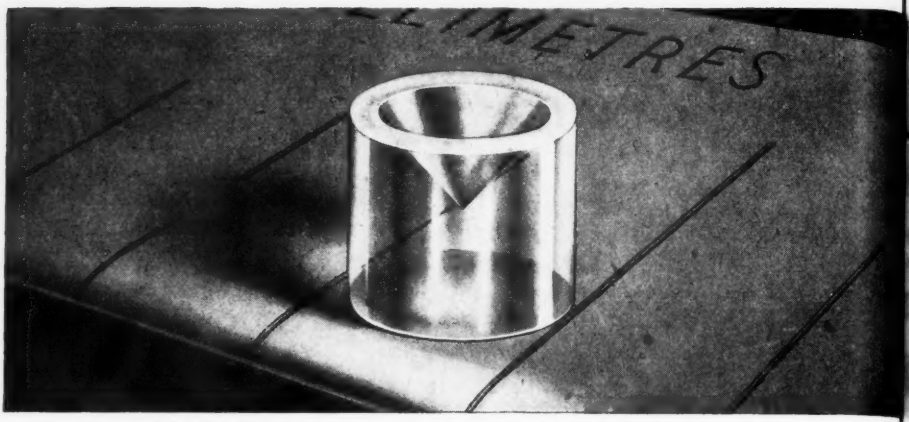

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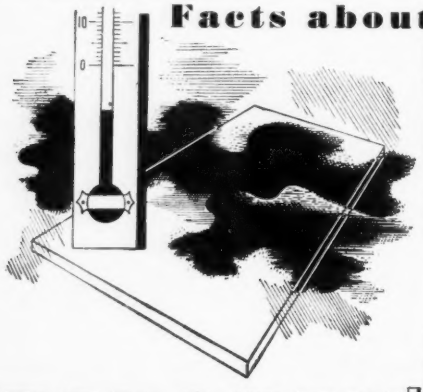

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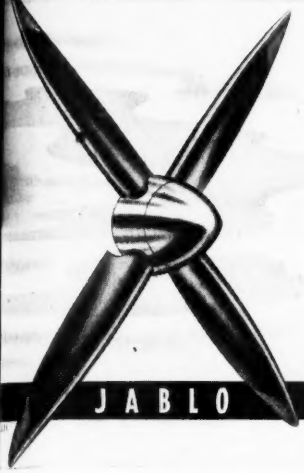

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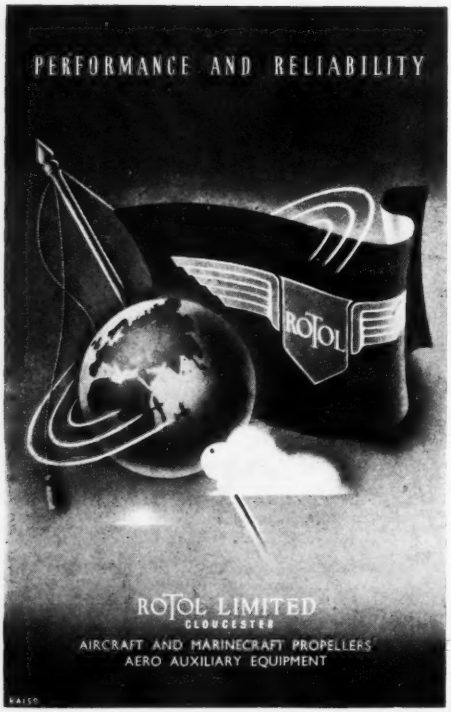

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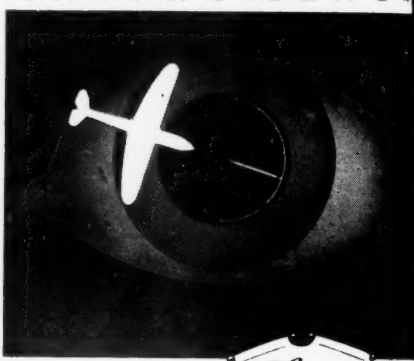

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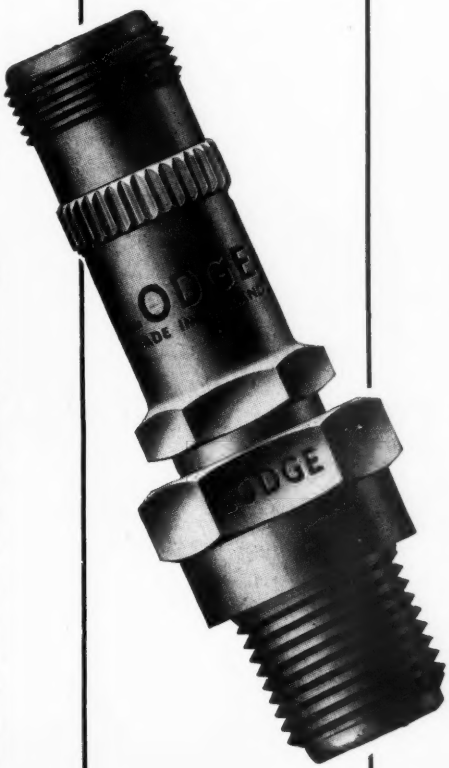

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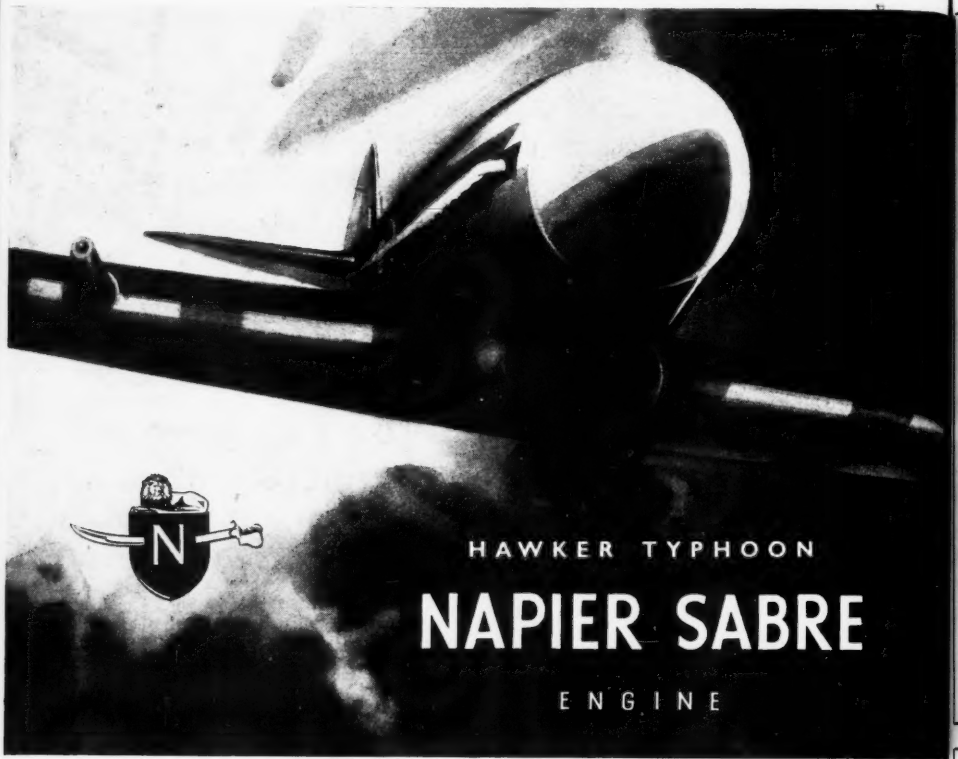

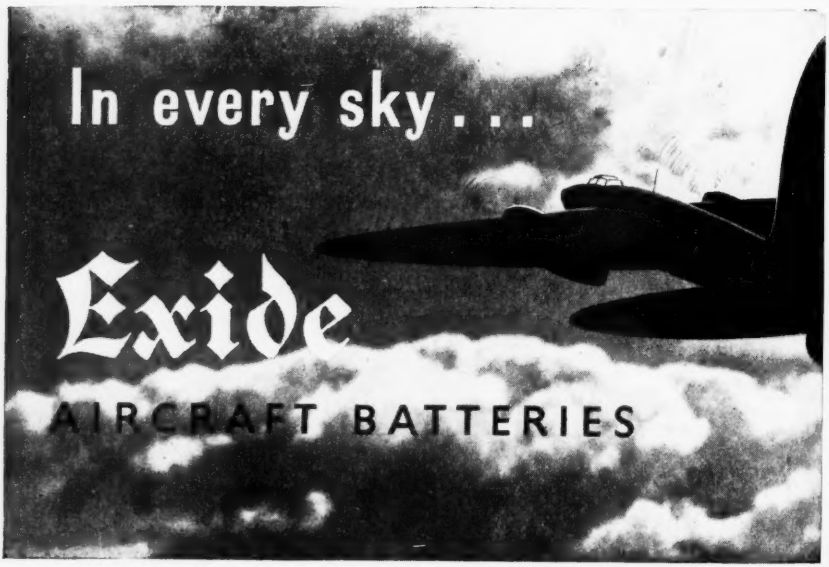

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THE JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY *was founded in* 1897 *in succession to the* ANNUAL REPORTS.

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Testing Lubricants and Bearing Materials V. H. Brix.
German Radiators, Oil Tanks and Coolers.
Enemy Spar Flanges and Extrusions.

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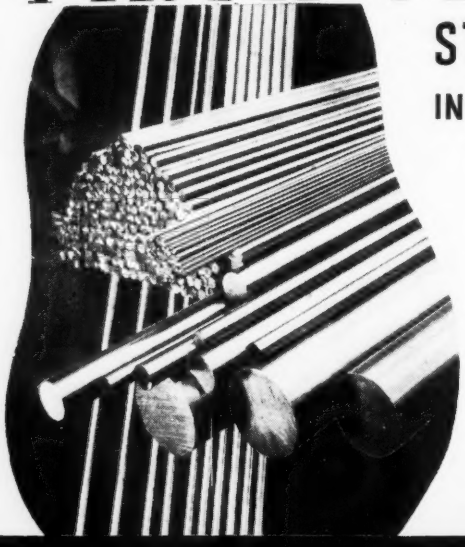

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MONTHLY NOTICES

DECEMBER, 1944.

Journal.

For some time the Council have had in mind making certain changes in the Journal of the Society to bring it into line with modern progress. The period of the war has made it extremely difficult to carry out any change and the contents of the Journal, too, have been severely restricted by security reasons.

The Council have decided that the time has now come when a start can be made and the January issue of the Journal will appear in a new format and a new cover and this issue of the Journal will be circulated to all members, including those who have so generously given up their Journals for the war period.

Increase in Price of the Journal.

The Council have decided that on and from January 1st, 1945, the price of the Journal should be increased to 7s. 6d. per issue to non-members (£4 10s. per annum).

Lectures, 1945.

The following programme of lectures has been arranged to be held, with the exception of the discussion on Civil Aviation, at 6.30 p.m. in the Lecture Hall of the Institution of Mechanical Engineers, Storey's Gate, St. James', S.W.1 (by permission of the Council of the Institution). Members do not need admission tickets, but visitors must obtain a ticket through a member:—

1945.

Tuesday, 23rd January.—Discussion on Civil Aviation, at **5.30 p.m.**

Thursday, 15th February.—Aircraft Wheels and Brakes, by Mr. J. Wright.

,, 1st March.—Control Surface Design, Joint Lecture by Mr. M. B. Morgan and Mr. Thomas.

,, 8th March.—Electrics for Aircraft, by Mr. C. G. A. Woodford, A.F.R.Ae.S.

,, 22nd March.—Hydraulics for Aircraft, by Mr. R. H. Bound, F.R.Ae.S.

,, 5th April.—Modern Experimental Work on Aeroplane Structures, by Dr. A. G. Pugsley, F.R.Ae.S.

,, 31st May.—33rd Wilbur Wright Memorial Lecture, by Mr. T. P. Wright, Hon.F.R.Ae.S.

Branch Lectures.

Luton Branch.

Lectures are held at the Technical College, Luton, at 7.15 p.m.

Wednesday, 10th January, 1945.—Flight Testing of Aircraft Control and Stability, by Dr. D. Cameron.

Medway Branch.

Lectures are held at 7.15 p.m.

Monday, 8th January, 1945.—Light Alloy Castings, by Mr. F. Hoult.
,, 12th February.—Compressibility, by Dr. W. F. Hilton.
,, 12th March.—Engine Installations, by Mr. F. Mayer.
,, 9th April.—Work in an Experimental Seaplane Tank, by Mr. L. Smith.

Belfast Branch.

Lectures are held in the Central Hall, College of Technology, at 6.30 p.m.

Monday, 8th January, 1945.—Film Evening.
,, 29th January.—Production and Works Organisation, by Mr. W. Browning, A.F.R.Ae.S., A.M.I.Mech.E., M.I.P.E.
,, 26th February.—Production Control, by Mr. R. Beaney, A.F.R.Ae.S., A.M.P.E.
,, 26th March.—Inspection, by Mr. W. H. Bell, A.F.R.Ae.S.
,, 16th April.—Test Flying, by Mr. J. Lankester Parker, F.R.Ae.S.

Bristol Branch.

Lectures are held in the Conference Room, Bristol Aeroplane Company, Filton House, Bristol, at 6.30 p.m., by kind permission of the Directors.

Thursday, 14th December.—Pressurising and Air Conditioning at High Altitudes, by D. R. Pobjoy.

Tuesday, 16th January, 1945.—Flight Testing, by Mr. E. T. Jones, A.F.R.Ae.S.

Tuesday, 6th February.—Plastics—Their Industrial Application, by Mr. H. Carl Martin.

Tuesday, 20th February.—Flying Boats, by Mr. A. Gouge, F.R.Ae.S.

Tuesday, 6th March.—Development in Rotating Wing Aircraft, by Mr. R. Hafner.

Tuesday, 20th March.—Film Night and Annual General Meeting.

Awards.

The President and Council tender their congratulations to the following members on their recent awards:—

Dr. F. W. Lanchester, F.R.S., Hon. F.R.Ae.S., Awarded the James Watt International Medal for his outstanding achievements in mechanical engineering, by the Institution of Mechanical Engineers.

Air Commodore F. Whittle, C.B.E., F.R.Ae.S., the James Alfred Ewing Medal for specially meritorious contributions to the science of engineering in the field of Research, presented by the Institution of Civil Engineers.

Air Commodore Whittle was also recently awarded the Gold Medal of the Royal Aeronautical Society for his work on Jet Propulsion.

Annual Subscription of Members.

Members are reminded that their 1945 subscriptions will become due on 1st January, 1945.

The Council are very grateful to all those members who have offered to forego their Journals for the duration of the war. The same reductions will be made to the 1945 subscriptions of these members as applied to the 1944 subscriptions. Subscriptions of Fellows, Associate Fellows, Graduates, Companions and Founder Members, who have given up their Journals will therefore be reduced by 10s. 6d. Associates will receive the reduction already aid down in the Rules and the low subscription at present paid by Students does not permit any reduction to be made.

The following will be the rates for 1945 therefore:—

	Home receiving Journal. £ s. d.	Home not receiving Journal. £ s. d.	Abroad receiving Journal. £ s. d.	Abroad not receiving Journal. £ s. d.
Founder Members	2 2 0	1 11 6	2 2 0	1 11 6
Fellows	4 4 0	3 13 6	3 3 0	2 12 6
Associate Fellows	3 3 0	2 12 6	2 2 0	1 11 6
Associatès	2 2 0	1 1 0	2 2 0	1 1 0
Graduates (age 21-25) ...	2 2 0	1 11 6	2 2 0	1 11 6
,, (age 26-28) ...	1 12 6	2 2 0	2 12 6	2 2 0
Students	1 1 0	1 1 0	1 1 0	1 1 0
Companions	2 2 0	1 11 6	2 2 0	1 11 6

Acknowledgments.

The Council acknowledge with grateful thanks the gift of Journals from Mrs. Walker-Sinclair (Companion) and Mr. D. Gilbert (Associate).

Election of Members.

The following members were recently elected:—

Associate Fellows.—Philip Edwin Berry, Brian Hugh Muirhead Buck (from Graduate), Eric Bairstow Carter, Percy George Crabbe, Gwilym John Cotroceni Davies (from Graduate), Victor William Kenneth Day (from Student), Bernard Ivo Goodwin (from Graduate), Raworth John Hill (from Associate), David James, Harold George Jones, Charles Frederick Joy, Ronald Ernest Penney (from Student) George Hedley Powell, Peter Ralph Price (from Graduate), Howard Charles Probyn, Adam Rylski-Scibor, Charles Sykes.

Associates.—Wilfred Walter Adams, Douglas James Adie, Wilfred John Davy Allan, Clifford John Bateman, Sydney Douglas Beeby, Edward William Street Berry, John Thomas Glundell (from Companion), Eric Maximillian Bosson, Arthur Jasper Burfoot, Francis Askew Calder, William Gibson Campbell, Herbert George Cant, Henry Clayton, George Thomas Collins, William Henry Cooper, Peter Nisbet Cunningham (from Graduate), Alfred Taylor Daniel, Norman Raymond Douglas Dunstall, Norman Fountaine Eagleton, John Elliott, Steven Wilson Fettes, Charles Garside, Maurice Alfred Glasspole, John Arthur Stanley Hodgson, Robert Willis Hole, Fred Holmes, Sydney Deighton Horbury, Percy William Horne, James Hartle Jagger, John Logan, Douglas Mackintosh, Frank Wilfrid Mabbett, Murzban Ruttonjee Mandviwalla, James Henry Allan Mead, John Mott, James William Munton, Stanley Thomas Naismith (from Student), James Arthur Charles Northway, Eric

Paulsen, Harry Trevor Piggott, Donald Westwood Richardson, Thomas Rose, Ronald Oliver Charles Siffleet, Frederick Charles Slaughter, Geoffrey Austin Wearen, Clifford Williams, Ernest Williamson, Desmond Sidney Ernest Wood, Allan George Woods, Thomas Wright.

Graduates.—Kenneth Charles Ball, Derek Le Roy Bird, Gordon Ronald Douglas Calder, Douglas Stuart Causer, Frederick John French, Joseph Huston Gault, William James Harris, Edward John Hidson, David Anthony Jermyn, Frederick Williams Kennedy, Frank Pilkington (from Student), Robert George Reed, Christopher Philip Dent Tooley, Arthur Jack Willshire.

Students.—Harold John Bailey, David Stuart Blackmore, Paul Brodetsky, Arthur Frederick Brown, William Chambers, Kenneth Frederick Clark, Ronald Gilchrist, Ivon William Graham, Valda Hanchard, Denis Armstrong Hiles, Ronald William Hiscock, David Holder, Gerald Arthur Hughes, John Robert Denis Kenward, Brian Desmond Lamb, Peter Adrian Liley, John Smith MacDougall, John McFarland, David Roy MacFarlane, Peter Ronald McFarlane, Denys John Mead, James Meadows, John Keith Pudney, John Roy Richardson, Kenneth Edward Silman, Hari Venkata Subbarao, Rodney Herbert Walsh, George Peter Wedgwood, Ronald Frederick West, Maurice Oliver Wilmer, George William Woods.

Companion.—Ernest Dyson.

Additions to the Library.

Pamphlets in italics with location reference following in brackets.
Books marked * or ** may not be taken out on loan.

A.a.306.—A Complete Course in Elementary Aerodynamics, with Experiments and Examples. N. A. V. Piercy. English Universities Press. 1944. 21/-.

B.a.328.—*The Fairey Firefly. Ministry of Aircraft Production. Press Release*, 3/11/44. (Y.3.iii.32.)

*B.a.329.—*Complete List of De Havilland Aircraft from D.H. 1 to D.H. 95. De Havilland Aircraft Co. (Stencil.)* (Y.3.ii.D.)

B.a.330.—*De Havilland "Mosquito": the Fastest yet in Service. Reprint from "The Aeroplane,"* 7/5/43. (Y.3.ii.D.)

BB.b.112.—*Weight Control in Aircraft Design and Production. Edward Bowyer. Article in "The Engineer,"* 18/8/44. (Y.8.d.3.)

BB.c.91 & 92.—*Aircraft Vibration: The Propeller Designer's View of it. De Havilland Aircraft Co.* 1944. (PBB.2.b.10 and 11.) Two copies.

BB.f.51.—Instruments. (5th Ed.) R. W. Sloley. Sir Isaac Pitman and Sons. 1944. 6/-

**D.a.A.26-28.—Overseas Air Service Patterns. Transcaribbean and Offshore Island Areas. (With Appendices I and II.) L. Welch Pogue, Edward Warner and Others. Civil Aeronautics Board, Washington. 1944.

D.b.225.—*French Aviation after June, 1940, its Perspectives in the Future. S./Lt. René Lucien. Lecture, April*, 1944. (*Stencil.*) (Y.6.ii.b.32.)

D.b.226.—*Commercial Air Transport. Sir F. Handley Page. Manchester Association of Engineers, 4th Annual Lecture.* 1943. (PD.1/28.)

E.d.22.—New Methods for Sheet Metal Work. (3rd Ed.) W. Cookson. Technical Press, Ltd. 1944. 12/-.

G.a.70.—Metallurgical Experiments. (Non-Ferrous Metals; Iron and Steel.) F. Johnson. Paul Elek (Publishers), Ltd. 1944. 5/-

G.c.29.—*The Measurement of Residual Stresses by the X-Ray Back-Reflection Method. L. Frommer and E. H. Lloyd. High Duty Alloys, Ltd.* 1944. (PG.1/26.)

I.a.37—*Elementary Mathematics for Radio Students. W. E. Flood. Longmans, Green and Co.* 1944. 1/6. (PI.1/13.)

**J.g.206.—*Meteorological Observations in Four Balloon Ascents. (Philosophical Transactions, May 26th, 1853; Reprint, autographed.) John Welsh,* 1853.

M.c.66.—Radio for Aeroplanes. D. Hay Surgeoner. Longmans, Green and Co. 1944. 3/6.

Q.c.44.—Report of the British Council, 1943-44.

*X.b.151.—Air Transport and Civil Aviation. (Yearbook, 1944-45.) Ed. by Lord Brabazon of Tara. Todd Publishing Co. 1944. 21/-.

J. LAURENCE PRITCHARD, *Secretary and Editor.*

COOLING AND GOVERNING PROBLEMS ON A WATER-COOLED AUXILIARY GENERATING PLANT.

By R. B. Winn.

1. General Requirements of A.G.P.

The A.G.P. is required to produce 20 kw. A.C. and 3 kw. D.C. continuous normal full load, at 3,750 r.p.m. The load is required for operating the electrical services on a large aircraft and must be maintained both when it is stationary and when it is in flight up to an altitude of 11,000 feet.

The A.G.P. must run cool in the standard English summer atmosphere (23°C. at ground level) and draw the necessary air from ports cut in one side of the aircraft. These ports must be formed from a 1ft. diameter hole divided on its diameter. The cooling air is to be drawn in through the forward semi-circular hole and, after passing through the installation, expelled through the rear semi-circular hole.

Accurate speed control must be maintained. Should a sudden load change equal to normal full load be thrown on or off the alternator, the governor must be capable of restoring the speed to 3,750 r.p.m. $\pm\frac{1}{2}$ per cent. within a period of one second.

2. Choice of Engines.

Power required to drive alternator at 23 kw. output and 85 per cent. efficiency	=36 h.p.
Power required to drive fan	= 9 h.p.
Power available in reserve for governor speed correction	= 8 h.p.
Total power from engine ...	=53 h.p.
Power factor corresponding to 11,000ft. altitude ...	= .6
Therefore, equivalent ground level engine b.h.p. ...	=88

At the time that these experiments were begun it was thought advisable to employ water-cooling. There was no chance of producing a special engine for this particular purpose, due to the time factor, and it was therefore decided to adapt the Ford V8/30 engine. This side valve engine has a swept volume of 3,620 c.c., with a bore and stroke of 77.8 mm. × 95.2 mm.

Modifications were made to the exhaust system to improve the smoothness of running, and the flywheel was lightened. A flexible coupling was fitted on the alternator shaft. The standard twin choke Chandler Grove carburettor was replaced by a single choke Claudel Hobson A1-48-K instrument, with automatic mixture control at altitude. An iso-speedic governor, running at camshaft speed, was interposed between the engine and the distributor.

The modified engine would easily give the required 88 b.h.p. at 3,750 r.p.m. The table below shows average values for the heat waste to the radiator at 3,750 r.p.m. when the thermal quantities are converted to h.p.

TABLE I.

B.H.P. from engine (no fan fitted)	0	45	90
H.P. dissipated as heat to radiator	75	98	120

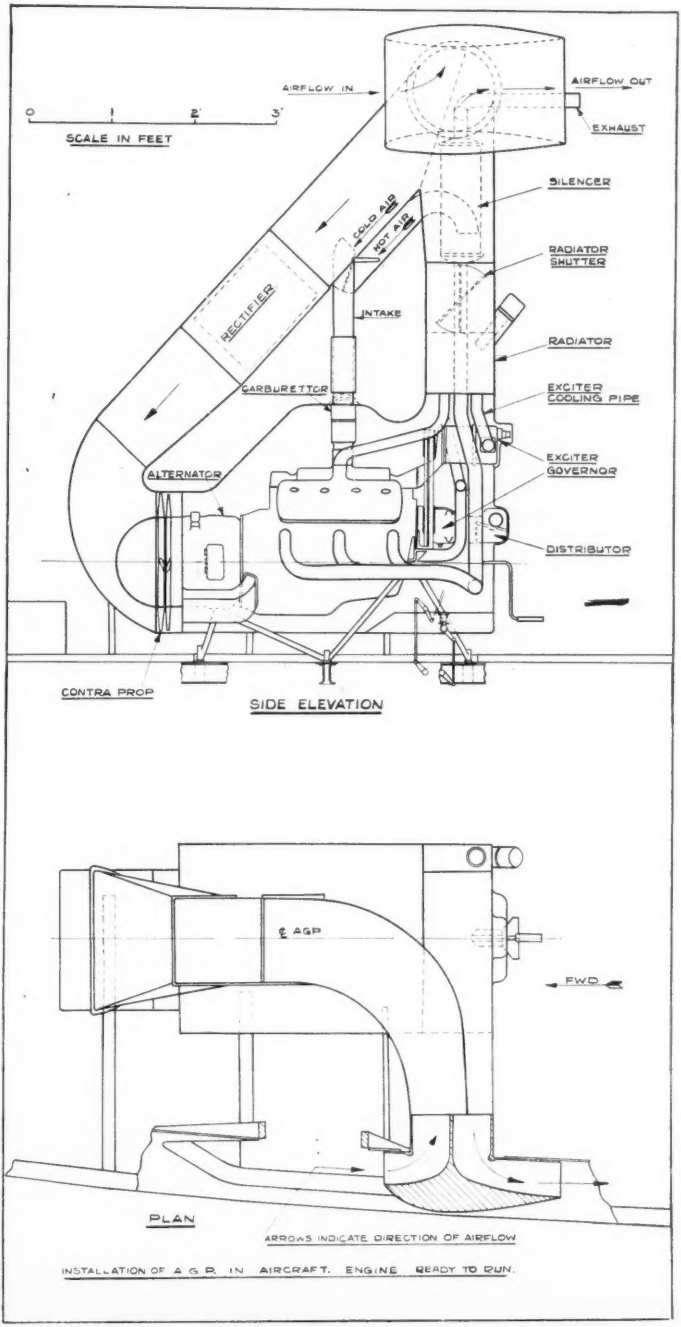

AIRFLOW IN
AIRFLOW OUT
EXHAUST
0 1 2 3
SCALE IN FEET
SILENCER
COLD AIR
HOT AIR
RADIATOR SHUTTER
RECTIFIER
INTAKE
RADIATOR
CARBURETTOR
EXCITER COOLING PIPE
ALTERNATOR
EXCITER GOVERNOR
DISTRIBUTOR
CONTRA PROP
SIDE ELEVATION
E.AGP
FWD
PLAN
ARROWS INDICATE DIRECTION OF AIRFLOW
INSTALLATION OF A.G.P. IN AIRCRAFT. ENGINE READY TO RUN.

FIG. 1.

The large values of the dissipated power are due to the relative inefficiency of a side valve engine, and the complication of " V " construction. This makes it necessary for the exhaust passages on the Ford to run through the water jackets from the inner side of the block where the valves are located to the manifold ports on the outer faces of the casting.

3. Description of Prototype A.G.P.

The design of the prototype A.G.P. has been drawn out on Fig. 1 and is based on a great number of tests carried out on ducted installations. The principal features are summarised below:—

(*a*) Single port ducting.
(*b*) 3 bank, 12 row radiator, built up from Ford 91A type blocks
(*c*) Radiator mounted in outlet duct, eliminating external water pipes.
(*d*) Contra-rotating fan, with aerofoil section blades running in cold air (of high density) and therefore producing maximum pressure.
(*e*) Rectifier, alternator, sump and engine all placed in cold air.
(*f*) Shutter to regulate air flow.
(*g*) Iso-speedic governor, running at half engine speed.

4. Description of Radiator.

The 91A type of Ford commercial radiator is made up of two blocks of cooling elements approximately 20in. high × 10in. wide, placed side by side and connected to the top and bottom water tanks. The standard radiator is four rows of water tubes deep.

By detaching the cooling blocks from their housing and then reassembling them in series a radiator of small frontal area can be constructed.

Values of the heat dissipation and air resistance constants r and z (see Appendix) are given in the table below for coolers of different depths. It should, however, be pointed out that actual test results do not go above two blocks in series. The extra heat dissipation produced by the third block has been calculated by visualising it as an elemental radiator placed in air already heated by the other two blocks. The resistance of the third block has been estimated by direct extrapolation.

No. of blocks in series (4 rows each) Ford 91A	1	2	3
Total No. of rows of water tubes in series ...	4	8	12
Heat dissipation constant r	.030	.054	.071
Air resistance constant z	.0013	.0022	.0031

Comparisons with tests carried out elsewhere on honeycomb radiators have convinced the writer that the fin and tube type is greatly superior for ducted installations. The high value of r allows a minimum quantity of cooling air to be circulated, whilst the high value of z is unimportant where the radiator offers only a small proportion (*e.g.*, $\frac{1}{3}$) of the total resistance.

The following particulars refer to a single cooling block, a fin of which is shown on Fig. 2.

Overall length of tubes between tanks	= 19.2 in.
Space at each end between tank face and end fin (blanked off on A.G.P.)	= .5 in.
Effective finned length of block	= 18.2 in.
Width of block	= 10.0 in.
Depth of block	= 3.0 in.
Effective finned frontal area	= 1.26 sq. ft.
Brass water tubes (.006 in. wall thickness).	
No. of tubes per row	= 19
No. of staggered rows per block	= 4
No. of tubes per block	= 76

Tube size	= .5 in. × .1 in.
Cross-sectional area per tube	= .046 sq. ins.
Perimeter of cross-section per tube	= 1.1 in.
Perimeter of cross-section of 76 tubes	= 83 in.

Copper fins (.004 in. thick).

No. of fins per block	= 176
Mean effective fin pitch	= .103 in.
Overall size of fin	= 3 in. × 10in.
Gross single surface area of fin	= 30 sq. ins.
Area of water tube holes per fin	= 3.5 sq. ins.
Net single surface area per fin	= 26.5 sq. ins.
Net double surface area per fin	= 53 sq. ins.

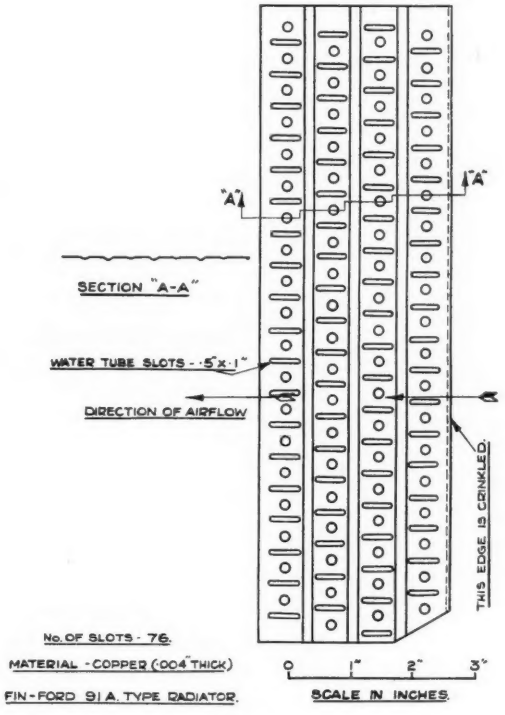


FIG. 2.

General data.

Total double surface fin area per block	= 65 sq. ft.
Total surface area of tubes exposed to air (or water) ...	= 11 sq. ft.
Total surface area of fins and tubes exposed to air ...	= 76 sq. ft.
Ratio of surface areas in contact with air and water ...	= 7 to 1
Maximum water flow per block (Ford practice)	= 30 G.P.M. at 3,750 r.p.m.
Corresponding velocity of flow	= 3.3 ft./sec.
Approximate weight (less header tanks empty	= 12 lbs.

5. Calculation of Temperatures and Air Flow at Ground Level.

It was laid down in paragraph 1 that the A.G.P. must not overheat when giving an output of 23 kw. with the aircraft stationary in an atmospheric temperature of 23°C.

Power taken from engine by alternator at 85 per cent. overall efficiency = 36 h.p.
Power taken from engine by contra-fan (at 85 per cent. mechanical and 85 per cent. aerodynamic efficiencies) ... ... = 9 h.p.
Total power taken from engine ... = 45 h.p.
Corresponding power dissipated to radiator (see Table, para. 2) ... = 98 h.p.
Estimated air temperature rise past transformer and rectifier ... ... = 2°C.
Estimated air temperature rise past alternator ... ... = 4°C.
Estimated air temperature rise past engine and sump (based on measurements with warm air) ... ... = 11°C.
Estimated temperature of air striking radiator = 23 + 2 + 4 + 11 ... = 40°C.
Maximum permissible water temperature ... ... = 97°C.

It will be found from the table in paragraph 4 that for a 12-row radiator $r = .071$.

Using the expressions defined in the Appendix the mean air radiator temperature may now be calculated from the following equation:—

$$\theta_A = \frac{\theta_w + t_A\left(\frac{.047}{r} - .5\right)}{\left(\frac{.094}{r} + 1\right)} + .5\, t_A \qquad (1)$$

$$= \frac{97 + 40\,(.047/.071 - .5)}{\left(\frac{.094}{.071} + 1\right)} + (.5 \times 40)$$

Whence mean air radiator temperature = 64.5°C.
Consequently the air exit temperature = 64.5 + (64.5 − 40) = 89°C.

Now σQ = the number of cu. ft./sec. of air, reduced to N.T.P. in circulation per second.

$$\text{And } \sigma Q = \frac{\{\,.047\,(T_A - t_A)\,\}}{P_w} \qquad (2)$$

$$\text{Required air circulation at N.T.P.} = \frac{98}{\{\,.047\,(89\text{-}40)\,\}} = 42.5 \text{ cu. ft./sec.}$$

6. Calculation of Pressure Drops at Ground Level for Air Flow of 42.5 cu. ft./sec. (N.T.P.).

Radiator.

From paragraph (4) radiator frontal area $A_R = 1.26$ and $z = .0031$ (for a 12-row radiator).

From paragraph (5) $\sigma Q = 42.5$ and $\theta_A = 64.5$.

The relative mean radiator air density σ_R (see Appendix) corresponding to a temperature of 64.5°C. = .855 at ground level barometer.

The loss of head of the airstream, through the radiator, in inches of water is found from the expression

$$H_R = \left(\frac{z}{\sigma_R}\right)\left[\frac{\sigma Q}{A_R}\right]^2$$

$$= \left(\frac{.0031}{.855}\right)\left[\frac{(.98 \times 43.5)}{(1.26)}\right]^2 \qquad (3)$$

Loss of head through radiator = 4.1 inches of water.

Wake Losses.

The kinetic energy of the hot airstream leaving the exit port is dissipated in eddies. The equivalent loss of head may be expressed in inches of water, and

may in practice be measured by means of an air speed indicator connected to a U tube manometer.

$$H_K = \left(\frac{1}{4400\,\sigma_K}\right)\left[\frac{\sigma Q}{A_K}\right]^2 \quad . \quad . \quad . \quad . \quad (4)$$

The temperature of the air leaving the outlet port after being in contact with the exhaust pipe is approximately 100°C. This is equivalent to a relative density $\sigma_K = .77$.

The cross-sectional area of the outlet port = .4 sq. ft.

$$H_K = \left[\frac{1}{(4400 \times .77)}\right]\left[\frac{(.98 \times 43.5)}{.4}\right]^2$$

Kinetic energy loss = 3.3 inches of water (velocity head).

The expression inside the square bracket is the velocity of the air in feet/second if reduced to N.T.P. and amounts in this instance to 106 feet/second.

Hull Side Scoops.

Although never actually made, the hull side scoops would have been fitted with vanes as shown on Fig. 1.

The loss of head round corners of this description has been very thoroughly investigated in R.A.E. Report No. B.A.1324. (R. & M. 1773.)

Provided that the mean radius of each passage is not less than twice the space between partitions, the loss of head round each right angle bend should not exceed 15 per cent. of the velocity head.

The loss of head due to shock at entry is small provided that the scoop has a well rounded leading edge and is of double skin construction. It may be taken as 15 per cent. of the velocity head.

Main Trunking Losses.

The main trunking losses consists of all the ducting on the A.G.P. side of the hull side scoops, *e.g.*, inlet duct, nose chute, box and outlet duct, but does not include the radiator. All these parts were built up in a slightly different form and tested as a unit. The following table has been compiled as a result of the data collected from all available sources :—

TABLE II.

HEADS AND LOSSES AT AIR FLOW OF 42.5 CU. FT./SECOND (N.T.P.).

Item.	Air temp. C.	Relative air density.	Cross sectional area of duct.	Velocity in ft./sec.	Velocity head in inches of water, as per equation (4).	Static head in inches of water.	Incremental gain of total head in inches of water.	Net total head in inches of water.
Entry shock.	23	.98	—	0	0	0	— .4	0
Hull side inlet scoop	23	.98	.40	106	2.6	−3.0	— .4	— .4
Inlet bend.	23	.98	.40	106	2.6	−3.4	— 1.0	— .8
Rectifier and transformer.	23	.98	1.08	38	.35	−2.15	— 1.0	−1.8
Nose chute.	25	.97	1.08	39	.35	−3.15	— 1.0	−2.8
Fan.	25	.97	1.30	33	.25	−4.05	+13.6	−3.8
Box.	25	.97	1.30	33	.25	+9.55	— 1.1	+9.8
Radiator.	40	.92	1.26	37	.28	+8.42	— 4.1	+8.7
Outlet bend.	89	.79	1.26	43	.33	+4.27	— .8	+4.6
Hull side outlet scoop.	95	78	.40	136	3.26	+ .54	— .5	+3.8
	100	.77	.40	138	3.30	0		+3.3

In practice it has been found that an air speed indicator gives completely unreliable results if used inside the ducting where the flow is turbulent. The flow can, however, be measured at the outlet port with fair accuracy, although it is a good plan first to check the smoothness of the wake with streamers.

The velocity head can then be calculated for any point inside the ducting, where the cross-sectional area is known. The static pressure head can be found satisfactorily by experiment if manometer connections are let in flush with the side of the ducting. The total head is the sum of the "velocity" and "static" heads.

It is convenient to summarise Table II as follows:—

Item.	Total head in inches of water.	
Entry shock and wake losses	3·7	At entry flow of 43·5 cu. ft./air sec. at 760 mm. barometer and at 23°C.
Hull side air scoop right angle corner losses ...	·9	
Rectifier and transformer losses	1·0	
Radiator loss	4·1	
Main ducting loss (less items specified above) ...	3·9	
Sum loss of total head =	13·6	

It is convenient to express the internal resistance of the installation by a duct constant C, where

$$C = \frac{H_T}{\sigma Q^2}$$

Substituting the appropriate values

$$C = \frac{13.6}{(.98 \times 43.5^2)} = .0073$$

7. Calculation of Temperatures and Air Flow Required at 11,000 ft.

Atmospheric temperature at 11,000 ft. (English summer) ...	= 3°C.
Atmospheric pressure at 11,000 ft. ,, ,, ...	= 500 mm. Hg.
Relative density at 11,000 ft. ,, ,, ...	= .69
Boiling point of water at 11,000 ft. ,, ,, ...	= 89°C.
Maximum permissible water temperature	= 86°C.
Air temperature rise from intake to radiator	= 17°C.
Temperature of air entering radiator = 3 + 17	= 20°C.
Mean air temperature in radiator (from equation (1)) ...	= 48.5°C.
Temperature of air leaving radiator	= 77°C.
Air temperature rise through radiator	= 57°C.
Air flow required at relative density .69	= 53 cu. ft./second.

The flow of air must therefore be increased by 22 per cent. in bulk; this is equivalent to a 14 per cent. reduction in mass circulation, due to the increased temperature range at altitude.

Sum loss of total head through the duct is given by the expression

$$H_T = C\sigma Q^2 \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

Substituting the appropriate values

$$H_T = .0073 \times .69 \times 53^2$$

whence

$$H_T = 14.1 \text{ inches of water.}$$

It will therefore be seen that the passage of the air required to cool the engine offers slightly more resistance at altitude than at ground level. When account is taken of the difference of density in which the fan operates under the two conditions, it will be clear that the scoops on the side of the hull play an essential part in keeping the engine cool in flight at altitude.

8. FAN CHARACTERISTICS.

The head, efficiency and power curves of a suitable fan are drawn on Fig. 3 for air of standard density. The flow shown for " aircraft stationary " is slightly in excess of that calculated above, but the shape of the curves is still correct. In order to understand the calculations for performance at other densities it is necessary to remember that for a constant speed fan the lift coefficient is determined by the speed of the air passing through the blades, and for equal flows the head is proportional to the density.

Ground Level.

The required flow at ground level was estimated at 43·5 cu. ft./sec. at entry to the ducting at 23°C., corresponding to 44 cu. ft./sec. through the fan annulus at 25°C. and .97 relative density.

The head at unit density for a flow of 44 cu. ft./sec. = 15in. water.

Therefore, head produced by fan at .97 relative density = 14.4in. water.

Sum loss of total head in the duct at above flow = 13.6in. water (see para. 6).

Therefore, margin of fan pressure = .8in. water at ground level.

11,000ft. Altitude.

The required flow at 11,000ft. was estimated at 53 cu. ft./sec. at entry to the ducting at 3°C. and .69 relative density.

The corresponding flow through the fan, after slight heating by the rectifier and transformer, amounts to 54 cu. ft./sec. at 5°C. and .68 relative density.

Head of unit density for a flow of 54 cu. ft./sec. = 12.7in. water (see Graph).

Therefore, head produced by fan at .68 relative density = 8.6in. water.

Sum loss of total head in duct at required flow = 14.1in. water (see para. 7).

Therefore, head to be supplied by scoops = 5.5in. water at 11,000ft.

9. EFFECT OF SCOOPS ON COOLING FLOW IN FLIGHT.

The increase in pressure head due to the fore and aft facing scoops being swept by the airstream may be taken as 1.75 times the dynamic pitot pressure. If V_A is the true speed of the aircraft in feet/second :—

$$\text{Pitot pressure in inches of water} = .00023\,\sigma V_A^2 \quad . \quad . \quad (6)$$

$$\text{Combined scoop pressure in inches of water} = .0004\,\sigma V_A^2 \quad . \quad (7)$$

Calculation of Minimum Aircraft Speed necessary to provide adequate Cooling at 11,000ft.

At the end of paragraph 8 it was estimated that a head of 5.5in. of water would have to be supplied by the scoops.

Substituting the appropriate values in equation (7)

Minimum true speed for cooling at 11,000 ft. $= \{ 5.5/(.0004 \times .69) \}^{\frac{1}{2}} = 140$ ft./sec.

This corresponds to an indicated air speed of $140\sqrt{.69}$ or 117 ft./sec. (*i.e.*, 80 m.p.h.).

General Relation between Flow and True Speed of Aircraft.

Using the symbols defined in the Appendix

$$H_T = H_P + H_A \quad . \quad . \quad . \quad . \quad . \quad . \quad (8)$$

Now by inspection of the Graph F.C.17 over the working range of flows

$$H_P = (25.5 - .237Q)\,\sigma \quad . \quad . \quad . \quad . \quad . \quad (9)$$

Equation (8) may now be rewritten

$$C\sigma Q^2 = (25.5 - .237Q)\,\sigma + .0004\,\sigma V_A^2.$$

Cancelling σ and dividing throughout by $C = .0073$

$$Q^2 + 32.4Q = 3500 + .055\,V_A^2 \quad . \quad . \quad . \quad . \quad (10)$$

Whence it will be seen that for a given ducting and fan the flow volume depends entirely on the true speed of the aircraft, irrespective of the altitude at which it is flying. The weight of the air flow, of course, decreases with density.

The solution of equation (10) for different air speeds is shown in the table below:—

TABLE III.

TRUE AIRCRAFT SPEEDS AND FLOW THROUGH DUCTING.

True air speed in m.p.h.	0	95	145	190
True air speed in ft./sec.	0	137	213	276
Flow in cu. ft. sec. at entry	43	53	63	73

10. POWER ABSORBED IN COOLING ENGINE AND IMPORTANCE OF CONTROLLING FLOW.

It will be seen from Fig. 3 that the power absorbed by the fan with the aircraft stationary amounts to about 7.8 h.p. at 85 per cent. aerodynamic efficiency. Assuming 85 per cent. also for the mechanical efficiency of the contra gear box, the total power taken from the A.G.P. engine for cooling purposes equals about 9 h.p.

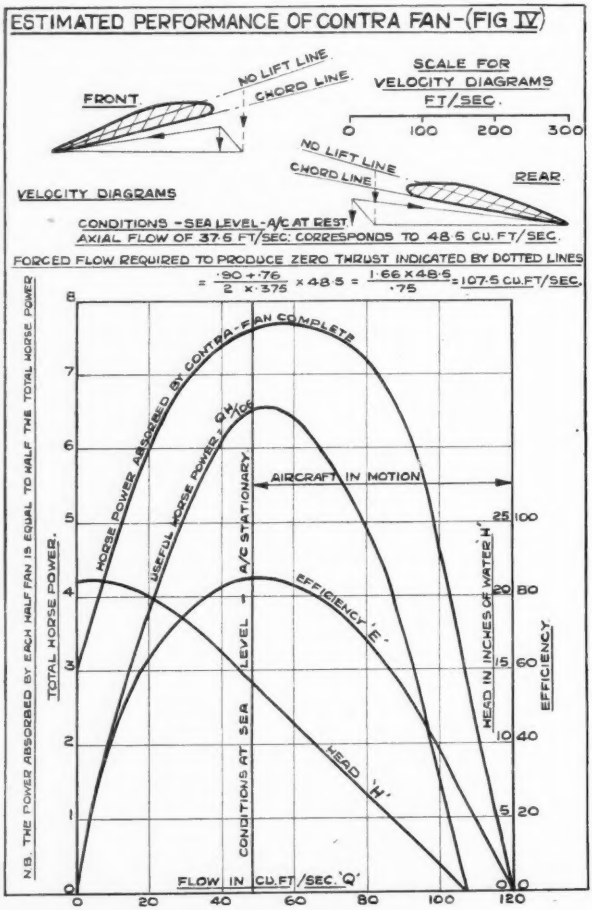

ESTIMATED PERFORMANCE OF CONTRA FAN-(FIG IV)
FRONT
NO LIFT LINE.
CHORD LINE.
SCALE FOR VELOCITY DIAGRAMS FT/SEC.
0 100 200 300
NO LIFT LINE.
CHORD LINE.
REAR.
VELOCITY DIAGRAMS
CONDITIONS - SEA LEVEL - A/C AT REST.
AXIAL FLOW OF 37·6 FT/SEC: CORRESPONDS TO 48·5 CU. FT/SEC.
FORCED FLOW REQUIRED TO PRODUCE ZERO THRUST INDICATED BY DOTTED LINES
= ·90 + ·76 / 2 × ·375 × 48·5 = 1·66 × 48·5 / ·75 = 107·5 CU.FT/SEC.
N.B. THE POWER ABSORBED BY EACH HALF FAN IS EQUAL TO HALF THE TOTAL HORSE POWER.
TOTAL HORSE POWER.
HORSE POWER ABSORBED BY CONTRA-FAN COMPLETE
USEFUL HORSE POWER = QH/66
A/C STATIONARY
AIRCRAFT IN MOTION
EFFICIENCY 'E'
HEAD 'H'
CONDITIONS AT SEA LEVEL + A/C STATIONARY
HEAD IN INCHES OF WATER 'H'
EFFICIENCY
FLOW IN CU.FT/SEC. 'Q'
0 20 40 60 80 100 120
0 1 2 3 4 5 6 7 8
0 5 10 15 20 25
0 20 40 60 80 100

FIG. 3.

Suppose the aircraft is flying at 190 m.p.h., skimming the ground, and the air flow shutter is open—

From Table III $-Q=73$ cu. ft./sec.

From paragraph (6) $H_T=C\sigma Q^2$ when the shutter is open.

$$H_T=.0073\times.98\ .73^2=38\text{in. of water.}$$

Horse-power absorbed by forcing 73 cu. ft. per second of air against a head of 38in. of water

$$=\frac{QH}{106} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (11)$$

In this case power absorbed

$$=\frac{(73\times38)}{106}=26\text{ h.p.}$$

Most of this power is ultimately supplied by the main engines.

Now suppose that the shutter is closed until the air flow is regulated to the 43 cu. ft. per second required for cooling at 24 kw.

Head supplied by fan ... ... $=14.4$in. water
Head supplied by scoops $=.0004\ \sigma V_A^2=.0004\times.98\times276^2$ ... $=30$in. water
Total available head ... ... $=44.4$in. water

In this case power absorbed

$$=\frac{(43\times44.4)}{106}=18\text{ h.p.}$$

The shutter therefore saves 8 h.p. besides allowing the engine to run at an economical temperature.

11. Advantages of Contra Fan.

The design of this component was based on the analysis of the B.M.W. fan contained in R.A.E. Report No. Aero 1790 (EAM75). It was, however, found necessary to simplify the method described therein by making approximations wherever possible. Valuable information was also obtained from Keller's "Axial Flow Fans."

The advantage of the contra, multi-blade, fan (see Fig. 4) is that all swirl in the slipstream can be eliminated. This is important as the circumferential swirl component of the airstream of a single fan exceeds the axial velocity by many times. In the case of the A.G.P. straight airflow is particularly desirable to provide a good entry into the alternator cooling scoops. A comparison of contra and single fans, both of 20in. diameter, is given below:—

Fan.	Head in inches of water.	R.P.M.	Aerodynamic efficiency.	Remarks
Contra	14.15in.	±3,750	85%	No swirl
Single	14.15in.	5,625	75%	Swirl

The centrifugal stresses in a single fan would be $2\frac{1}{4}$ times as great as in the contra fan.

12. Outline of Theory.

The thrust from a single stage fan of fixed diameter running at a given speed is not directly proportional to the number of blades. The torque component of the lift forces acting on the blade and the drag, to a lesser degree, both cause the slipstream to revolve. Half the total swirl is produced at the fan and the other half some way behind. The relative velocity at which the blade meets the air is thus somewhat less than the blade speed and an increase in the number of blades will increase the swirl and reduce the efficiency.

By fitting a second fan behind the first and rotating it in the opposite direction, the swirl of the first fan can be absorbed; and, if the blades are correctly proportioned, the final wake will not corkscrew at all. To obtain this effect the

solidity of the rear fan must be considerably less than the front, since the relative air speed is higher.

In view of the fact that the axial velocity is the same through both fans, the pitch angle of the blades on the front fan must be greater than on the rear. Both these effects will be seen on Fig. 4.

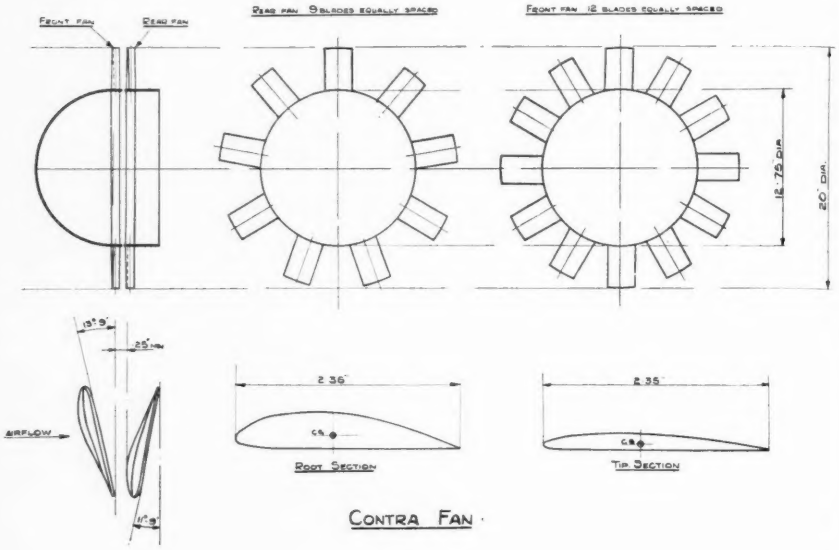


FIG. 4.

13. PARTICULARS OF CONTRA FAN (Fig. 4).

R.P.M.	±3,750 r.p.m.
Outside diameter	20in.
Inside diameter	12.75in.
Mean diameter	16.4in.
Mean circumference	51.5in.
Mean blade speed (linear)	268 ft./sec.
Area of annulus	1.3 sq. ft.
Blade length	3.625in.
Blade cord	2.35in.
Blade section	Modified B.M.W. fan section.
Thickness/chord ratio	16% at root, 7½% at tip.
Aerodynamic twist from root to tip	3½°.
Number of blades on front fan	12.
Number of blades on rear fan	9.
Solidity of front fan (mean)	.55.
Solidity of rear fan (mean)	.41.
Blade angle for front fan	13° 9′.
Blade angle for rear fan	11° 9′.
Blade section characteristics	See Fig. 5.
Fan characteristics	See Fig. 3.
Maximum working head (at $C_L = .95$)	15 inches of water.
Minimum working flow (at 15in. head)	45 cu. ft./sec.
Forced flow at which thrust disappears	107 cu. ft./sec.

Maximum useful power exerted by fan	...	6.6 h.p.
Maximum aerodynamic efficiency of fan	...	85%.
Maximum power absorbed by fan blades	...	7.8 h.p.
Mechanical efficiency of contra gear box	...	85%.
Maximum power taken from engine to drive fan		9 h.p.

N.B.—The performance figures given are estimated, but have been checked at an independent source.

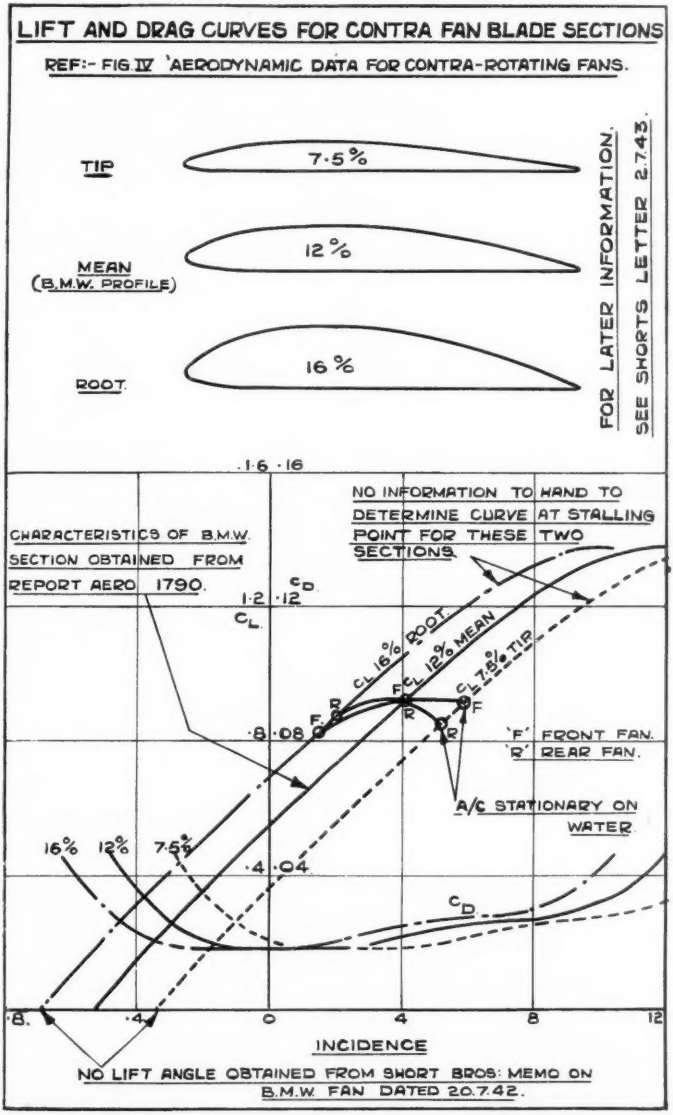


FIG. 5.

14. Problem of Governing.

The general requirements have already been specified in paragraph (1). The great accuracy of speed control demanded and the large instantaneous accelerations implicit in sudden load changes, make ordinary mechanical r.p.m. indicators quite unsuitable for purposes of measurement. A very simple type of stroboscope was eventually developed, in which the shutter speed did not vary perceptibly. The behaviour of the engine could be closely watched under the most exacting conditions. It was found essential to carry out a smooth running test on every engine before attempting to govern it. It was run up to 3,750 r.p.m. at no load and the throttle was then locked. The crankshaft pulley was viewed with the stroboscope and under favourable conditions appeared absolutely stationary for an indefinite period.

The load was increased in steps throughout the power range and the throttle was locked in each position to give 3,750 r.p.m. The stroboscope test was repeated at each stage and if any sign of snatching was observed the engine was turned down for rectification.

Another factor affecting the engine in these governor tests was the necessity of ensuring rapid acceleration. Anything in the nature of flat spots led to the most violent hunting and instability.

The apparatus used for the sudden application or removal of load consisted of an electrical resistance panel connected to the alternator. Loads in multiples of six up to 30 kw. could be switched on or off instantaneously.

15. Tuning Fork Stroboscope.

The construction of this instrument is shown in Fig. 6. The tuning fork is oscillated at a set frequency by means of an electric "buzzer." It is contained in a wooden box, complete with dry-cell battery.

Shim steel plates are attached to the ends of the two prongs in such a way that they overlap and form a shutter. An aperture .03in. wide is cut in each plate, so that exposure takes place when the tuning fork is in the mean or free position.

A single eye-piece is fitted and the disengaged eye must therefore be closed. In spite of the small size of the aperture a remarkably wide field of vision is obtained.

The frequency of operation depends on the fundamental characteristics of the tuning fork and not on the strength of the battery. Initial adustment of the speed of oscillation was carried out by gradually paring down the size of the shutter plates until the requisite conditions were obtained.

The frequency of oscillation was 1,875 cycles per minute, giving 3,750 glimpses per minute. The amplitude of each fork tip was $\pm .325$in. and the exposure time of the shutter $1/2125$ seconds.

When using the instrument it was essential to cut out all A.C. lighting and have either daylight or strong D.C. lighting to illuminate the object. This consisted of a disc, half black and half white, stuck to the crankshaft pulley (see Fig. 6). When the engine was running at 3,750 r.p.m. the stroboscope was tuned to make the engine appear stationary.

Any steady divergence from the mean speed could be found by counting the apparent speed at which the disc rotated. Thus, if the disc appears to make a complete revolution in the same direction as the engine once in every three seconds, the true engine speed is $(3750+20)$ r.p.m. Similarly, if it appears to rotate in the opposite direction at the same rate, the true speed of the engine is $(3750-20)$ r.p.m.

Instantaneous speeds immediately following sudden load changes can only be measured satisfactorily by a recording oscillograph, but the purchase of such expensive equipment has not seemed justifiable.

The advantages of the tuning fork stroboscope over earlier devices which were tried can be summarised as (1) accuracy, (2) compactness and being entirely self-contained, and (3) reliability. The instrument, which will run for at least 10 hours on one battery, has been in general use for about eighteen months.

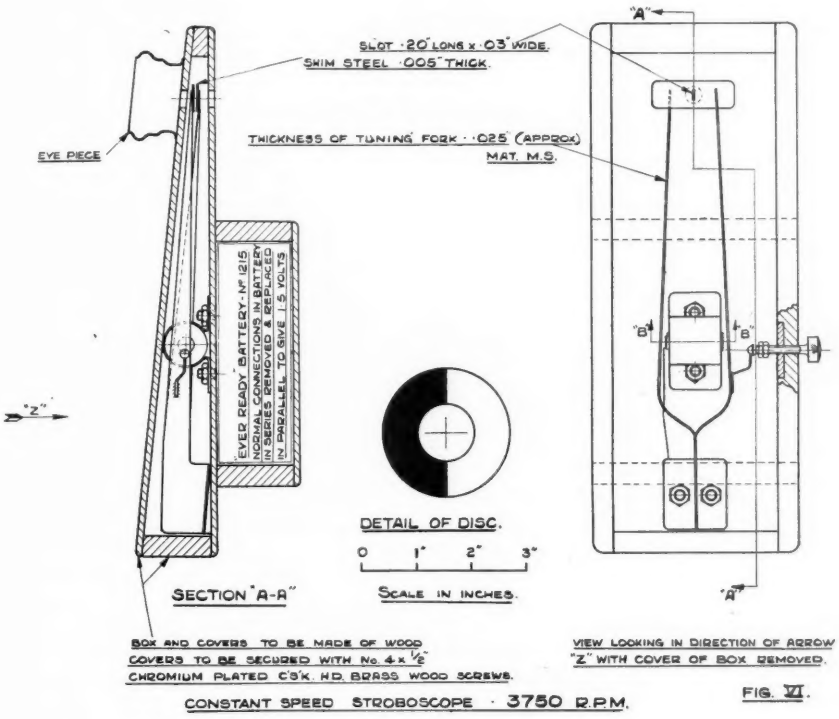

SLOT :20" LONG x :03" WIDE.
SKIM STEEL :005" THICK.
EYE PIECE
THICKNESS OF TUNING FORK :025 (APPROX) MAT. M.S.
EVER READY BATTERY NO 1215 NORMAL CONNECTIONS IN BATTERY IN SERIES REMOVED & REPLACED IN PARALLEL TO GIVE 1.5 VOLTS
"A"
"B"
"Z"
DETAIL OF DISC.
0 1" 2" 3"
SCALE IN INCHES.
SECTION "A-A"
BOX AND COVERS TO BE MADE OF WOOD
COVERS TO BE SECURED WITH No 4 x 1/2" CHROMIUM PLATED C'S'K. H.D. BRASS WOOD SCREWS.
VIEW LOOKING IN DIRECTION OF ARROW "Z" WITH COVER OF BOX REMOVED.
CONSTANT SPEED STROBOSCOPE · 3750 R.P.M.
FIG. VI.

FIG. 6.

16. DESCRIPTION OF ISO-SPEEDIC GOVERNOR.

The instrument is shown diagrammatically in Fig. 7 and runs at half-engine speed. Oil is supplied under pressure from the engine and is returned by a drain pipe to the sump. The instantaneous movement of the throttle butterfly, following a sudden load change, is controlled directly by the mechanical side of the governor which is adjusted to give a large speed range. The throttle position is then re-set by a hydraulic leak device which is completely balanced at the mean speed only.

The operation may best be followed by considering a hypothetical case.

Assume that the engine is running steadily at 3,750 r.p.m. near full load, with the governor balls in their mean position and the hydraulic valve consequently neutral.

Imagine the load to be suddenly reduced. The engine will instantly accelerate and the balls move out, displacing the valve in the direction of the arrow. The opening of the valve tends to make the piston move in the same direction, but it is impeded by the small size of the orifice and the point P may be considered as momentarily stationary.

With link *P.F.E.* virtually fixed, link *G.E.T.* swings with *E* as fulcrum, closing the throttle.

The engine is now running steadily once more, at a lighter load, but at a considerably faster speed with the balls out.

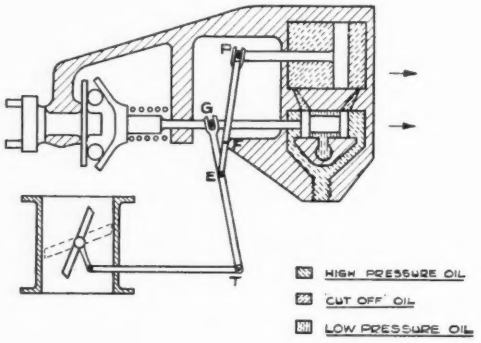
Under these conditions *G* may be regarded as fixed, with *P* moving in the direction of the arrow. The throttle is gradually closed until the engine speed is brought back to 3,750 r.p.m., when the balls return to their mean position and the valve balances the oil pressure on the two sides of the piston.

The most important points to note are:—

(*a*) Neglecting friction, the engine always returns to the mean speed, no matter what the load.

(*b*) When running steadily the piston takes up a different position for every load at which the engine runs.

(*c*) The hydraulic pressure is not used as a relay to increase the power of the governor, but merely to operate the re-setting mechanism.



CYCLE OF OPERATIONS OF "ISOSPEEDIC" GOVENOR.

FIG. 7.

17. ELECTRIC MOTOR RIG TEST WITH ISO-SPEEDIC GOVERNOR.

As mentioned above, the governor is designed so that the hydraulic re-setting piston can be locked in its mid position. The instrument then functions purely mechanically and the stability of the engine can be tested without introducing another unknown factor.

Before trying it on the engine, however, it was considered advisable to drive the governor from a variable speed electric motor and check the speed range. This had already been calculated from the weight of the balls, the geometry of the mechanism, and the rate and initial compression of the spring. The estimate was based on the assumption that the mass of each ball could be regarded as concentrated at its centre of gravity.

The calculated and test r.p.m. are both plotted on Fig. 8, which also shows the ball and cone governor mechanism. It will be seen that the speed range of ± 6 per cent. is much greater than calculations predicted and that the two r.p.m. curves " bow " in opposite directions.

This discrepancy can be explained if account is taken of the gyroscopic couples called into play by forcing the balls to rotate bodily round the main axis of the

cone whilst they are compelled to spin individually round their own axes, at right angles to the main governor spindle. Tilting couples are thereby induced, which are large enough to exercise a profound influence on the speed characteristic.

It may be of interest to note in passing that large errors can be made in designing the more usual type of governor with L-shaped bobs, if it is assumed that the centrifugal force passes through the centre of gravity of each weight. Pitching couples are, in general, necessary for equilibrium and they can only be estimated by a laborious graphical integration.

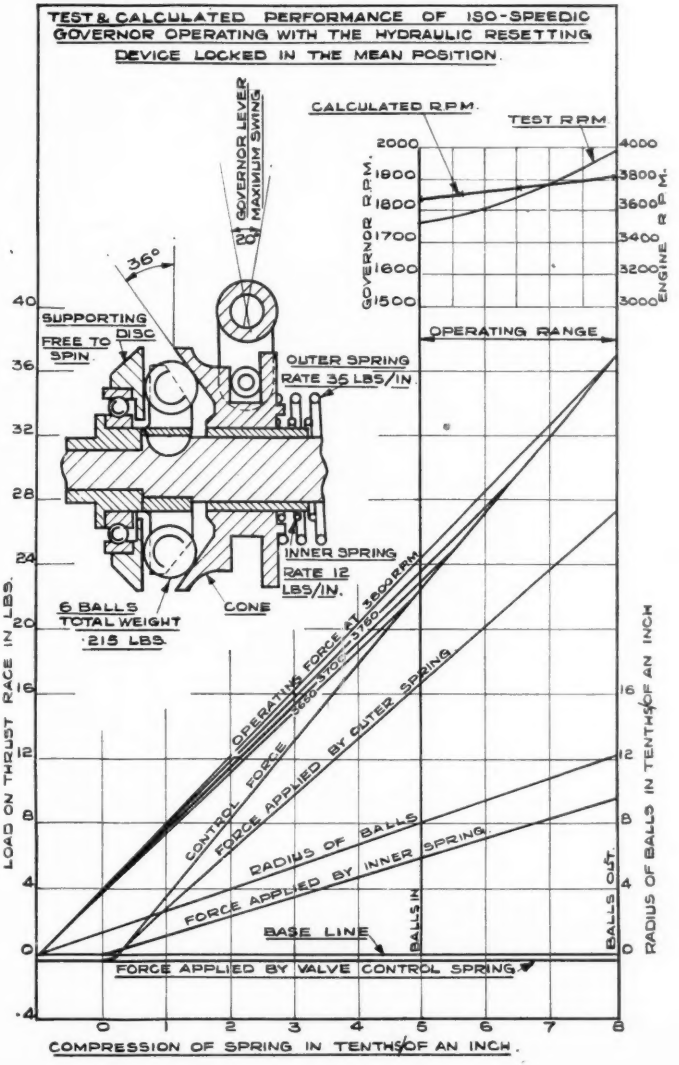


FIG. 8.

18. Relation between Throttle Angle and Engine B.H.P.

The engine was run at 3,750 r.p.m. with the throttle controlled by hand. The butterfly angle was noted for every power output, and the resulting curve is drawn on Fig. 9a. It will be seen that the butterfly has to be opened $7\frac{1}{2}°$ to reach 3,750 r.p.m. at no load. (The quantity of air sucked into the carburettor under these conditions was found from another experiment to be nearly half that required at full throttle.)

The power rises rapidly at first as the butterfly angle is increased, but the last 10°-15° of movement at full throttle have no appreciable effect on the maximum power produced by the engine.

19. Governor-Carburettor Linkage.

The geometry of this linkage is shown on Fig. 10a, and relates the butterfly angle to the axial displacement of the governor cone. All the principal variables may now be shown on a single graph, and this has been drawn on Fig. 9b. The engine r.p.m. N and governor spring load S, both plotted against spring compression X, are transferred from Fig. 8; whilst the engine power P for any throttle angle ϕ is obtained from Fig. 9a.

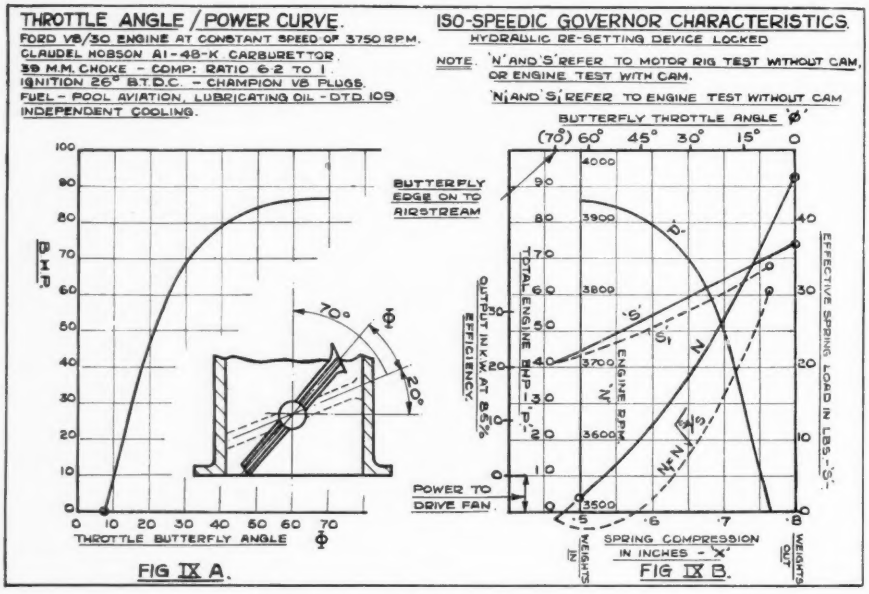

THROTTLE ANGLE / POWER CURVE.
FORD V8/30 ENGINE AT CONSTANT SPEED OF 3750 R.P.M.
CLAUDEL HOBSON A1-48-K CARBURETTOR.
39 M.M. CHOKE - COMP: RATIO 6.2 TO 1
IGNITION 26° B.T.D.C. - CHAMPION V8 PLUGS.
FUEL - POOL AVIATION, LUBRICATING OIL - D.T.D. 109
INDEPENDENT COOLING.
B.H.P.
THROTTLE BUTTERFLY ANGLE Φ
70°
Φ
20°
FIG IX A.
ISO-SPEEDIC GOVERNOR CHARACTERISTICS.
HYDRAULIC RE-SETTING DEVICE LOCKED
NOTE. 'N' AND 'S' REFER TO MOTOR RIG TEST WITHOUT CAM, OR ENGINE TEST WITH CAM.
'N1' AND 'S1' REFER TO ENGINE TEST WITHOUT CAM
BUTTERFLY THROTTLE ANGLE Φ
BUTTERFLY EDGE ON TO AIRSTREAM
POWER TO DRIVE FAN.
OUTPUT IN K.W. AT 85% EFFICIENCY.
TOTAL ENGINE B.H.P. - P.
ENGINE R.P.M. - N
EFFECTIVE SPRING LOAD IN LBS. - S
SPRING COMPRESSION IN INCHES - X
WEIGHTS IN
WEIGHTS OUT
FIG IX B.

Fig. 9.

20. Air Moment on Butterfly.

When running at 3,750 r.p.m. the air which is sucked into the engine exerts a moment on the butterfly, tending to close the throttle as shown in the following table:—

Throttle angle, measured from shut position (20° to horizontal)	$7\frac{1}{2}°$	15°	30°	45°	60°
Air moment in ounce inches	6.8	8.1	9.2	8.2	4.2

The moment reaches a maximum of 9.2 ounce inches at mid throttle. This is equivalent to reducing the effective force of the governor spring by nearly 2 lbs. with the linkage of Fig. 10a and is indicated by the dotted *S* curve on Fig. 9b. The resultant speed characteristic is lowered and altered in shape to the dotted *N* curve, the value of which at any given position is proportional to the square root of the spring load.

It should be noted that near full throttle a condition of "isochronism" is reached.

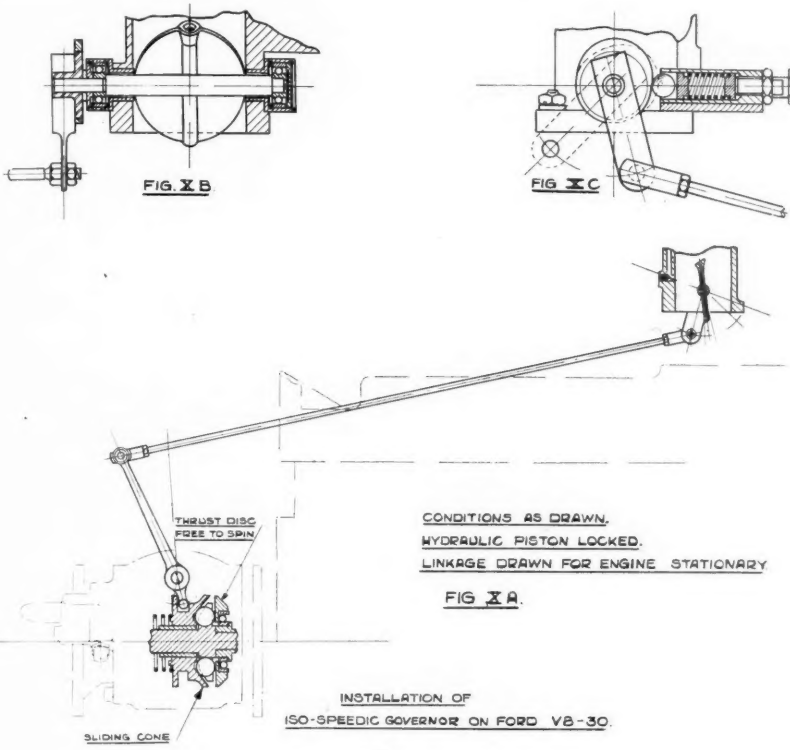


FIG. 10.

21. FRICTION IN THROTTLE SPINDLE BEARINGS AND ITS EFFECT ON GOVERNING.

When the engine is running at no load at 3,750 r.p.m. the depression in the induction manifold is approximately 18in. of mercury. The resultant suction force on the butterfly, working in a throat of 1.88in. diameter, amounts to 16.5 pounds. This is large enough to produce considerable friction in the throttle spindle bushes, especially when the spindle has become pitted. In practice this pitting necessitated frequent polishing of the spindle. For instance, one hour's running at no load was sufficient to make overhaul essential. The poor condition of the spindle was caused by lack of proper lubrication and trouble from condensation. Incidentally, warm air was essential for the carburettor intake in order to prevent the formation of ice; besides jamming the bearings the deposit of ice on the butterfly was liable to alter the shape of the air moment curve described in the last paragraph.

Whilst these factors are of small importance in a manually operated throttle, they assume great significance in the delicate control exercised by a governor. It was, however, decided to carry out the first tests with an absolutely standard A1-48-K carburettor, with plain throttle spindle bushes.

With the governor set on the engine to give the dotted characteristics of Fig. 9b, sudden load changes could be applied with no sign of hunting. The capacity of the electrical load panel did not exceed 30 kw. and the power range which this represents is clearly shown on the graph. The load could be changed 6 kw. per switch. Although the engine was perfectly stable it did not return closely to the mean r.p.m. and from this point of view the control was not satisfactory.

It was therefore decided to mount the throttle spindle on ball bearings, which could be relied on to give consistently frictionless operation. The scheme was carried out as shown on Fig 10b, but the cam device was not fitted at this stage. The blue prints were supplied by Messrs. Hobson Components, and the carburettor modified accordingly.

When tested with the governor the most violent hunting occurred. It therefore appeared that a mean must be struck between the frictional resistance of plain and ball bearings for the throttle spindle.

The hydraulic piston was locked and an adjustable star type damper connected in the link system. Excellent results were at once obtained.

22. Combined Air Moment Neutralising Cam and Damper.

At this stage the cam and ball mechanism, shown on Fig. 10c, was introduced to neutralise the air moment by applying an opposite torque to the throttle spindle. The advantages of this scheme were:—

(*a*) The governor could first be thoroughly tested as an independent unit on an electric motor rig. When transferred to the engine and connected up to the carburettor with integral cam, every confidence could be felt that the speed characteristic was unchanged.

(*b*) The straightening of the r.p.m. curve thus effected brought the balls to a much more central position in the cone when running at mean speed. This allowed a greater range of adjustment in setting the sleeve over the hydraulic valve to bring the equilibrium speed to exactly 3,750 r.p.m. The external adjustment was itself a modification to the iso-speedic governor and is shown on Fig. 11.

(*c*) The improvement in the shape of the r.p.m. curve avoids the danger of hunting near full throttle (at altitude).

(*d*) No additional damping was required (*i.e.*, star type damper of paragraph 6 could be eliminated).

23. Performance with Ball Bearing Carburettor and Cam.

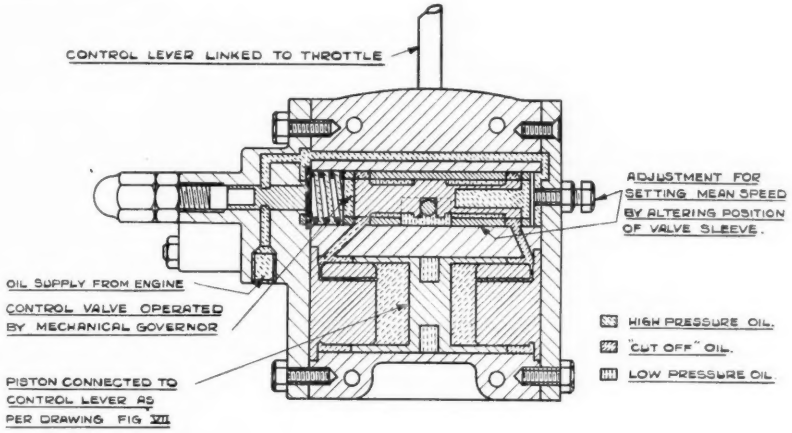
With the piston locked and the governor set on the engine to regulate the speed, as shown by the full line curve of Fig. 9b, very satisfactory results were obtained. Sudden load changes of 18 kw. (29 h.p. at 85 per cent. efficiency) could be thrown on and off the engine by violently "morsing" the switch on the load panel without upsetting stability. A master switch was connected to the load panel so that 30 kw. (48 h.p.) load changes could be produced. Sudden changes of this magnitude were carried out successfully in both directions with the piston locked and free. The switch was not sufficiently robust to allow repeated operation.

With the piston free the mean speed could be restored to the required limits of $\pm\frac{1}{2}$ per cent. within one second.

Owing to lack of suitable electric and or altitude equipment, sudden load changes were not possible near full throttle. When run on the H. & F. bed, however, the engine showed no sign of hunting at high loads.

24. Detail Particulars of Governor Installation.

A mathematical analysis of the phenomenon of hunting is described in Timoshenko's "Vibration Problems in Engineering." In effect the formulæ given specify the conditions which the normal type of oil dashpot must satisfy in order to prevent hunting, in terms of the known variables such as governor weights and spring settings, flywheel inertia and so forth. The conditions apply to installations in which the friction of the linkage is small compared with the damping properties of the dashpot.


CONTROL LEVER LINKED TO THROTTLE
ADJUSTMENT FOR SETTING MEAN SPEED BY ALTERING POSITION OF VALVE SLEEVE.
OIL SUPPLY FROM ENGINE
CONTROL VALVE OPERATED BY MECHANICAL GOVERNOR
PISTON CONNECTED TO CONTROL LEVER AS PER DRAWING FIG VII
HIGH PRESSURE OIL.
"CUT OFF" OIL.
LOW PRESSURE OIL.

G. A. - HYDRAULIC RELAY - COVENTRY CLIMAX 150-SPEEDIC GOVERNOR.

Fig. 11.

In the case of the Ford V8/30 unit, damping in the first place had to be subtracted from the installation, not added. Moreover, the viscous motion of the normal oil dashpot was replaced by the sliding of bearing surfaces subjected to engine vibration. This trembling action undoubtedly reduces friction to a remarkable degree, particularly if the relative movement of the parts in contact is slow.

It is evident that a measurement of the total damping present in the governor and linkage system is impractical, but full particulars of the mechanical factors bearing on the problem are listed below.

Engine.

For general particulars see paragraph (2), mean speed 3,750 r.p.m. Moment of inertia of rotating parts rigidly connected to (and including) crankshaft ... ... = 3·75 lbs. ft.²

Engine—Alternator Coupling.

Rubber bonders, flexible.

Alternator/Fan Unit.

Moment of inertia of parts driven flexibly (*i.e.*, coupling itself, rotor and special 4-bladed test fan) ... ... = 2.50 lbs. ft.²

Carburettor.

Claudel Hobson A.1-48-K (modified).
Diameter of throat ... ... = 1.88 inches.
Movement of butterfly allowed by linkage ... ... = 60°
Throttle spindle mounted on ball bearings.

Air Moment Cam.

Mean diameter of cam ... ... = 1.4 inches.
Approximate cam ball spring load ... ... = 2-4 lbs.
Maximum neutralising moment exerted ... ... = 9.2 lbs. ins.

Iso-Speedic Governor.

Runs at half-engine speed.
Speed range, with hydraulic piston locked ... ... = ±6 per cent.
Balls in—
Spring compression ... ... = .5 inches.
Spring load ... ... = 22.2 lbs.
Radius of operation of balls ... ... = .8 inches.
Balls out—
Spring compression ... ... = .8 inches.
Spring load ... ... = 37.0 lbs.
Radius of operation of balls ... ... = 1.2 inches.
Number of balls ... ... = 6
Diameter of balls ... ... = .625 inches.
Total weight of balls ... ... = .215 lbs.

Linkage.

Amal universal joints on throttle and governor levers.
Equivalent weight of all moving linkage parts concentrated at the governor cone ... ... = 2.8 lbs.

25. Acknowledgments.

The following firms offered every possible assistance in these experiments: Messrs. Ford Motors, Dagenham; Messrs. Rotax, Willesden Green; Messrs. Iso-Speedic, Coventry; Messrs. Hobson Components, Coventry.

The general direction of the development programme was due to Mr. J. W. Thorburn, Chief Designer, and the conduct of the tests was in the hands of Mr. A. Mangles, Experimental Engineer, who was also responsible for a number of invaluable suggestions. I am, finally, indebted to Messrs. Pobjoy for permission to publish this paper.

APPENDIX.

Glossary of Terms.

t_A = Temperature of air entering radiator in °C.
T_A = Temperature of air leaving radiator in °C.
θ_A = Mean air temperature in radiator in °C. = $\frac{1}{2}(T_A + t_A)$.
θ_w = Mean water temperature in °C. (variation between inlet and outlet is small).
p = Barometric pressure in millimetres of mercury.
t = Atmospheric temperature in °C.

$$\sigma = \text{Relative atmospheric density} = \frac{288}{(273 + t)} \times \left(\frac{p}{760}\right)$$

P_w = Horse-power dissipated as heat to radiator = $.047\ \sigma Q\ (T_A - t_A)$.

Q = Volume of air in cu. ft./sec. entering duct at relative density σ.

r = Radiator dissipation constant—horse-power dissipated as heat to radiator, per cu. foot of air at N.T.P. entering the radiator, per second; per degree centigrade mean temperature difference between water and air

$$= \frac{P_w}{\{\ \sigma Q\ (\theta_w - \theta_A)\ \}} = \frac{\{\ .047\ (T_A - t_A)\ \}}{(\theta_w - \theta_A)}$$

H_R = Loss of head of airstream through radiator in inches of water.

σ_R = Relative mean air density through radiator = $\frac{288}{(273 + \theta_A)} \times \left(\frac{p}{760}\right)$

A_R = Gross frontal area of radiator cooling elements in sq. feet.

V_R = Mean air velocity through radiator in ft./sec. = $\frac{\sigma Q}{\sigma_R A}$

z = Radiator drag constant—loss of head of airstream through (cold) radiator in inches of water, when air at N.T.P. is moving at a velocity of 1 ft./sec. = $\frac{H_R}{(\sigma_R V_R^2)} = \sigma_R H_R \left[\frac{A}{\sigma Q}\right]^2$

H_K = Kinetic energy loss (pitot pressure) in inches of water of hot airstream leaving outlet port.

σ_K = Relative density of air leaving outlet port.

A_K = Cross-sectional area in square feet of outlet port.

H_T = Sum loss of total head in duct, in inches of water.

C = Duct constant = $\frac{H_T}{\sigma Q^2}$

V_A = True speed of aircraft in ft./sec.

H_A = Head, in inches of water, produced across scoops by aircraft speed V_A.

H_P = Head, in inches of water, produced by fan at constant r.p.m. and flow Q.

X = Governor spring compression in inches.

ϕ = Angular opening of carburettor butterfly, in degrees, from shut position.

N = Engine revolutions per minute.

S = Governor spring force in lbs.

P = Engine brake horse-power, with independent cooling (no fan).

STRESSES DUE TO INTERNAL HYDROSTATIC PRESSURE IN THIN-WALLED VESSELS OF STREAM-LINE FORM.

By A. M. Binnie and J. C. Ward.

1. Introduction.

Tanks in the form of a surface of revolution are sometimes employed for carrying fuel. The purpose of this paper is to show how the stresses, due to the internal hydrostatic pressure, in a shell of this kind can be calculated when the equation of the generating curve is given. The acceleration imposed on the shell and its contents will be assumed to be at right angles to the axis of revolution, hence shear as well as direct stresses are set up. It will be supposed that no longitudinal bulkheads are fitted, and the shell will be taken as very thin so that the bending stresses in it are negligible. No attempt will be made to examine the stress distribution in the neighbourhood of a relatively rigid supporting ring; as shown by Timoshenko[1] these ' end effects ' are appreciable only in the immediate vicinity of the support. Nor will the stability be considered of those portions of the shell which are subjected to compression. Thus attention will be confined to what are commonly described as the membrane stresses. Particular consideration will be paid to stream-line shells, but the method proposed

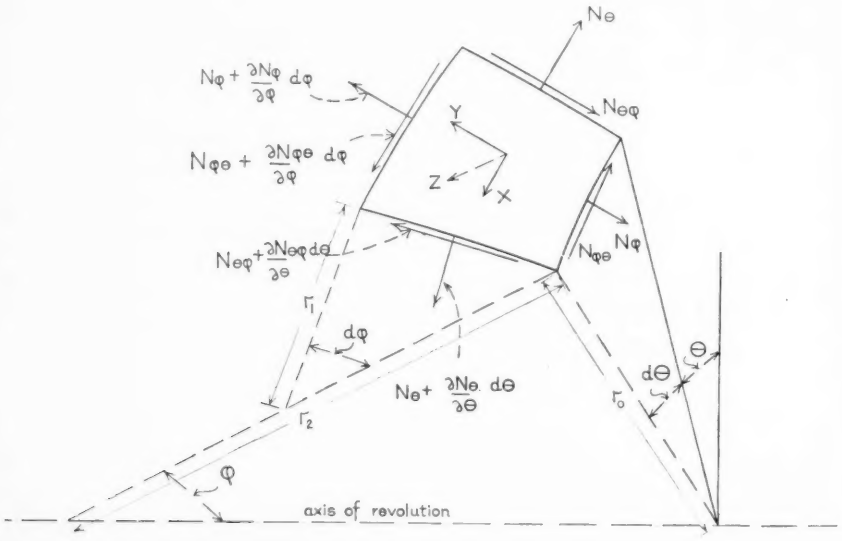


FIG. 1

Explanation of Symbols.

[1] Timoshenko, Theory of Plates and Shells, McGraw-Hill, New York and London, 1940, chaps. XI and XII.

is equally applicable to shapes, such as ellipsoids, which are symmetrical about a vertical transverse section.

2. General Theory.

It is convenient to take the loading on the shell as downward and to divide it into two parts. In the first (A) we suppose the shell to be just full of liquid of effective density ρ, the pressure at the axis being zero. In the second (B) we take the shell subjected to a uniform pressure ρh equivalent to the vertical distance h between the axis and the free surface in the reservoir or connecting pipe. On superposing the two systems, we obtain the forces in the shell due to the stipulated hydrostatic pressure with head h.

(A) *Forces due to the hydrostatic pressure, the pressure at the axis being zero.*

We adopt Timoshenko's notation[2], indicated in Fig. 1, which shows an element of the shell bounded by two meridians and two parallel circles. The principal radii of curvature are r_1 and r_2, the former being the radius of the generating curve and the latter the length of the normal. The meridian angle θ is measured from an arbitrary direction, which we will take to be that of the upward vertical. The forces N_φ, N_θ, $N_{\varphi\theta}$, are expressed per unit length of section, and X, Y, Z are the components of the intensity of the external load on the element.

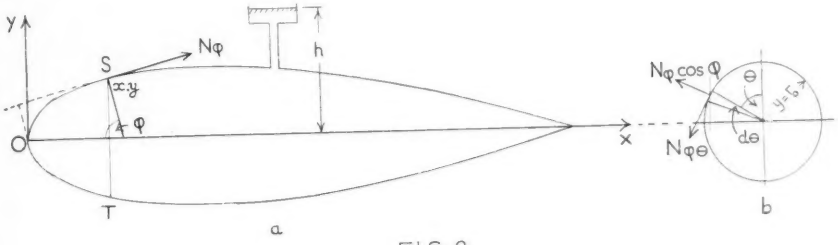


FIG. 2

(*a*) *Side Elevation of Stream-line Shell* (*Cox's Shape* 3, *Fineness Ratio* 4).
(*b*) *Cross-section at ST looking in the direction of O.*

It is proved by Timoshenko that the three equations of equilibrium of the element are

$$\frac{\partial}{\partial\phi}(r_0 N_\varphi) + r_1 \frac{\partial N_{\varphi\theta}}{\partial\theta} \quad r_1 N_\theta \cos\phi + r_1 r_0 Y = 0, \qquad (1)$$

$$\frac{\partial}{\partial\phi}(r_0 N_{\varphi\theta}) + r_1 \frac{\partial N_\theta}{\partial\theta} + r_1 N_{\varphi\theta}\cos\phi + r_1 r_0 X = 0, \qquad (2)$$

$$\frac{N_\varphi}{r_1} + \frac{N_\theta}{r_2} + Z = 0. \qquad (3)$$

Here $X = Y = 0$ and $Z = \rho r_0 \cos\theta$. Then, on substituting in (1) and (2) the value of N_θ given by (3), and using the relation $r_2 = r_0 \operatorname{cosec}\phi$, we obtain

$$\left.\begin{aligned} &\frac{\partial N_\varphi}{\partial\phi} + N_\varphi\left(\frac{1}{r_0}\frac{\partial r_0}{\partial\phi} + \cot\phi\right) + \frac{r_1}{r_0}\frac{\partial N_{\varphi\theta}}{\partial\theta} = -\rho r_1 r_0 \cot\phi \cos\theta, \\ &\frac{\partial N_{\varphi\theta}}{\partial\phi} + N_{\varphi\theta}\left(\frac{1}{r_0}\frac{\partial r_0}{\partial\phi} + \frac{r_1}{r_0}\cos\phi\right) - \operatorname{cosec}\phi \frac{\partial N_\varphi}{\partial\theta} = -\rho r_1 r_0 \operatorname{cosec}\phi \sin\theta. \end{aligned}\right\} \qquad (4)$$

[2] Loc. cit., p. 373.

To solve these equations we may write

$$N_\varphi = P \cos\theta, \quad N_{\varphi\theta} = Q \sin\theta \quad . \quad . \quad . \quad . \quad (5)$$

where P and Q are functions of ϕ only. On substituting (5) in (4) we find that the terms in θ disappear, leaving first-order simultaneous equations in P and Q. The standard procedure then yields two second-order equations, one in P only and the other in Q only. Even for a cycloid, which possesses radii of curvature expressible in simple forms, these equations are hard to solve; for a stream-line shape they are impracticable. However, the validity of the expressions (5) has been established, and, to evade the difficulty of solution, we may return to first principles and consider the equilibrium of the portion OST of the shell which lies between the nose O and the vertical section ST shown in Fig. 2. The supports are assumed to be to the right of the section.

First we consider the vertical equilibrium of OST. It appears from an examination of Fig. 2, in which are indicated the forces N_φ and N_θ exerted *on* OST that the upward vertical force on OST due to N_φ and $N_{\varphi\theta}$ is

$$\int_0^{2\pi} (N_\varphi \cos\phi \cos\theta - N_{\varphi\theta} \sin\theta) y \, d\theta,$$

which with the aid of (5) reduces to $\pi y (P \cos\phi - Q)$. This is balanced by the inertia $\int_0^x \rho\pi y^2 \, dx$ of the liquid contained in OST. Hence

$$P \cos\phi - Q = \frac{\rho}{y} \int_0^x y^2 \, dx. \quad . \quad . \quad . \quad . \quad (6)$$

The condition that OST is in equilibrium horizontally is automatically satisfied, therefore to obtain a second relation between P and Q we take moments about a horizontal axis through O. The clockwise moment on OST due to N_φ and $N_{\varphi\theta}$ is

$$\int_0^{2\pi} \{ N_\varphi \cos\theta \, (y \sin\phi - x \cos\phi) + N_{\varphi\theta} x \sin\theta \} \, y d\theta,$$

which on using (5) becomes

$$\pi y \{ (Q - P \cos\phi) x + P y \sin\phi \}$$

The clockwise moment due to the hydrostatic pressure on the vertical face ST is $\rho\pi y^4/4$ and due to the inertia of the liquid is OST is $\int_0^x y^2 x dx$ Therefore

$$(P \cos\phi - Q)x - Py \sin\phi = \frac{\rho y^3}{4} + \frac{\rho}{y} \int_0^x y^2 x dx \quad . \quad . \quad (7)$$

Then P and Q can be found from (6) and (7). From (5) and (3) it is seen that N_θ is of the form $N_\theta = R \cos\theta$, where R is a function of ϕ only. Hence, when P is known, R can be obtained from (3). The problem is thus reduced to one of integration—a much simpler operation than the solution of differential equations.

To obtain the forces in the shell at the rear end, it is easiest to reverse the shell end for end by writing $(a - x)$ for x in the equation of the generating curve, a being the length of the shell. The method explained above will then hold good as far as a supporting ring. Should there be more supporting rings than one, the forces in the shell between them can be found by means of a simple extension of the method.

(B) *Forces due to a uniform pressure* ρh.

This system of loading has been examined by Timoshenko[3], who proves that

$$\left.\begin{aligned} N_\varphi &= \rho h r_2/2, \\ N_{\varphi\theta} &= 0, \\ N_\theta &= \rho h r_2 \{ 1 - r_2/(2r_1) \} \end{aligned}\right\} \quad . \quad . \quad . \quad . \quad . \quad (8)$$

The total values of N_φ, $N_{\varphi\theta}$ and N_θ are obtained by superposing the systems A and B, and on dividing them by the uniform thickness of the wall we obtain the corresponding stresses.

3. Numerical Example.

Cox[4] has shown that a great variety of stream-line shapes can be derived by distorting an ellipse, and all the forms which he described can be dealt with by the method of section 2. As an example we will consider his sharp-tailed shape 3, which in its most general form can be specified by

$$y^2 = k^2 x(a-x)^2 \quad . \quad . \quad . \quad . \quad . \quad (9)$$

for values of x lying between 0 and a. Here a is the length of the shell, and k^2 is a constant depending upon the fineness ratio, i.e., the ratio of the length to the maximum diameter. For this shape the centre of gravity of the contents is at a distance $2a/5$ from the nose, and we will assume that a single supporting ring is placed at this section.

For the front part of the shell ($0 \leqslant x \leqslant 2a/5$) the required integrals are

$$\int_0^x y^2\, dx = k^2 x^2 \left(\frac{a^2}{2} - \frac{2ax}{3} + \frac{x^2}{4} \right)$$

$$\int_0^x y^2 x\, dx = k^2 x^3 \left(\frac{a^2}{3} - \frac{ax}{4} + \frac{x^2}{5} \right)$$

P and Q are then determined from (6) and (7). The results in non-dimensional form are

$$\frac{P}{\rho a^2} = \operatorname{cosec}\phi \left\{ ak^2 \left(\frac{x}{a}\right)^3 \left(\frac{1}{6} - \frac{1}{6}\frac{x}{a} + \frac{1}{20}\frac{x^2}{a^2} \right) \left(\frac{y}{a}\right)^{-2} - \frac{1}{4}\left(\frac{y}{a}\right)^2 \right\}. \quad (10)$$

$$\frac{Q}{\rho a^2} = \frac{P}{\rho a^2}\cos\phi - ak^2 \left(\frac{x}{a}\right)^2 \left(\frac{1}{2} - \frac{2}{3}\frac{x}{a} + \frac{1}{4}\frac{x^2}{a^2} \right) \left(\frac{y}{a}\right)^{-1} \quad . \quad . \quad (11)$$

r_1 and r_2, which are given by

$$\tan\ \phi = 1 \Big/ \frac{dy}{dx} = 2\frac{y}{a} \Big/ \left\{ ak^2 \left(1 - \frac{x}{a}\right)\left(1 - 3\frac{x}{a}\right) \right\} \quad . \quad . \quad (12)$$

To obtain R from (3) and the forces under uniform pressure from (8) we require r_1 *and* r_2, which are given by

$$\frac{r_1}{a} = \frac{-\left\{ 1 + \left(\frac{dy}{dx}\right)^2 \right\}^{\frac{3}{2}}}{a\frac{d^2y}{dx^2}} = 4\left\{ \frac{x}{a} + \frac{ak^2}{4}\left(1 - 3\frac{x}{a}\right)^2 \right\}^{\frac{3}{2}} (ak^2)^{-\frac{1}{2}} \left(1 + 3\frac{x}{a}\right)^{-1} \quad (13)$$

$$\frac{r_2}{a} = \frac{y}{a}\operatorname{cosec}\phi. \quad . \quad . \quad . \quad . \quad (14)$$

For the rear end we reverse the shell by writing $(a-x)$ for x in (9). Thus we now use the expression

$$y^2 = k^2\ (a-x)x^2 \quad . \quad . \quad . \quad . \quad (15)$$

[3] Loc. cit., p. **365**.

[4] Cox, J. of Roy. Aero. Soc., Vol. **33** (1929), p. **800**.

over the range $0 \leqslant x \leqslant 3a/5$. For this the integrals are

$$\int_0^x y^2 dx = k^2 x^3 \left(\frac{a}{3} - \frac{x}{4}\right)$$

$$\int_0^x y^2 x dx = k^2 x^4 \left(\frac{a}{4} - \frac{x}{5}\right)$$

P and Q are given by

$$\frac{P}{\rho a^2} = \operatorname{cosec}\phi \left\{ ak^2 \left(\frac{x}{a}\right)^4 \left(\frac{1}{12} - \frac{1}{20}\frac{x}{a}\right)\left(\frac{y}{a}\right)^{-2} - \frac{1}{4}\left(\frac{y}{a}\right)^2 \right\} \quad . \quad (16)$$

$$\frac{Q}{\rho a^2} = \frac{P}{\rho a^2}\cos\phi - ak^3 \left(\frac{x}{a}\right)^3 \left(\frac{1}{3} - \frac{1}{4}\frac{x}{a}\right)\left(\frac{y}{a}\right)^{-1} \quad . \quad . \quad (17)$$

$$\text{where } \tan\phi = 2\frac{y}{a} \Big/ \left\{ ak^2 \left(\frac{x}{a}\right)\left(2 - 3\frac{x}{a}\right)\right\} \quad . \quad . \quad . \quad (18)$$

Equation (14) for r_2/a still holds good, but r_1/a is changed to

$$\frac{r_1}{a} = 4\left\{1 - \frac{x}{a} + \frac{ak^2}{4}\left(2 - 3\frac{x}{a}\right)^{\frac{3}{2}}\right\}^{\frac{2}{3}} (ak^2)^{-\frac{1}{3}} \left(4 - 3\frac{x}{a}\right)^{-1} \quad . \quad (19)$$

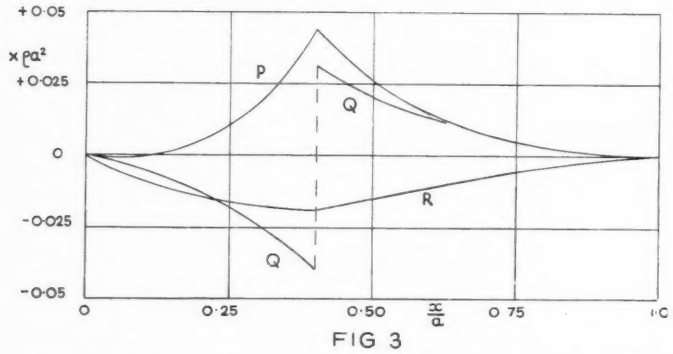


FIG 3

Forces in Shell due to Hydrostatic Pressure (Cox's Shape 3, Fineness Ratio 4).

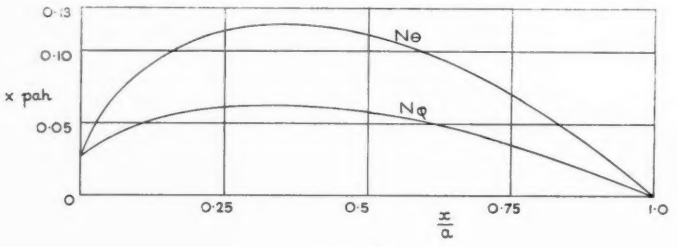


FIG. 4

Forces in Shell due to Uniform Pressure (Cox's Shape 3, Fineness Ratio 4).

To push these results to a numerical conclusion we will take the fineness ratio of the shell to be 4, for which $ak^2 = 27/256$. This shape is shown in Fig. 2a, and

the corresponding values of P, Q and R are displayed in Fig. 3. As is to be expected, all the forces are maximum at the support. An interesting, although not an important feature, is the negative value of P when x/a is small. Thus just above the nose the effect of the negative internal pressure there is sufficient to make the longitudinal force compressive, and just below it these conditions are reversed. For the sake of completeness the values (deduced from (8)) of N_φ and N_θ under the uniform pressure are given in Fig. 4.

REVIEW.

THE LUFTWAFFE.

C. G. Grey. Faber and Faber, Ltd. 8s. 6d. net. 1944.

This book is divided into five parts. Part I deals with the start of German aviation; Part II with the German Air Force in the war of 1914-18; Part III with Germany between the wars; Part IV with the coming of the Luftwaffe; and Part V with the Luftwaffe at war.

The author has seen it all, and few are better qualified to write on the growth of aviation, either military or civil. As soon as the possibilities of aircraft were seen the Germans took them up far more vigorously than in this country. On the outbreak of war in 1914 we were able, by scraping every machine together we could, to send 50 aeroplanes across to France. The Germans had somewhere about 500. The Germans, too, as the author rightly points out, had paid far more attention to anti-aircraft guns than this country.

Here is the story of the Fokker synchronizing gear, which enabled pilots to fire through the propeller, and the "Fokker scourge" which followed, and the British response after questions had been raised in Parliament by Pemberton Billing. Here is the story of the see-saw development of fighters on both sides, until they were beaten out of the air.

In Part III the author deals with the growth of the Luftwaffe, despite the Treaty of Versailles, from the early gliding which made Germany air-minded to the secret training of the Luftwaffe. "There's no doubt," to quote, "that the training for the Luftwaffe service meant the training of a number of first-class bomber pilots. And it trained a remarkable number of good navigators."

The story is told of Captain Neville Stack landing at Stettin, to find a first-class training school in full blast. He was told that 100 pilots a year were being trained at that school for the Luftwaffe, and there were five other schools doing the same. Not bad going for one civil airline in those days!

"They were all obviously drilled men. And all the training was done with military precision."

And all that was long before anybody had heard of Hitler in this country.

In 1934 the first open move towards the formation of an Air Force was made. In that year Germany had 30 first-class aerodromes, and 66 second-class aerodromes. In the following year the Luftwaffe came into being, divided into six air regions. The air vote was increased two and a half times. Five years later the Luftwaffe felt powerful enough to declare war in Europe.

Here is the history of the Luftwaffe since that September 3rd, from the Stuka dive bomber, through the Battle of Britain to the bombing of London, the war with Russia, and the steady eclipse of the once dreaded German air machine.

C. G. Grey has packed, and packed it well in these few pages, the story of the Luftwaffe. It is a most excellent summary by one who knows aviation as few men in this country know it, and writes with a punch which interests always, even if it annoys sometimes. Whatever critics may say of him, he must always be remembered as the man who put the C.G. into the aeroplane.

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Special Addition Agent Steels. (R. B. Schenck, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, Transactions, pp. 385-393.) (118/1 U.S.A.)

The term " special addition agent " refers to a group of ferro alloys containing boron which have the property of markedly increasing the hardenability of many steels.

NOTE 1.

The composition of some of these special addition agents or needlers intensifiers (needling agents) is given below:—

TABLE I.

Alloy Desig.	Al.	B.	Ca.	Mn.	Si.	Ti.	Zn.	Fe.
1	7	·5	10	—	35/40	10	4	Rest
2	—	10/12	—	—	3	—	—	,,
3	10/20	½	—	15/25	20/30	10/20	—	,,
4	13	·5	—	8	—	20	4	,,
5	—	⅛	—	—	40/45	—	—	,,

The amount of additive required is very small (2 to 4.16 per ton of ingot), the exact quantity and nature depending on the composition of the steel and the degree of deoxidation. The improvement is quite phenomenal, an ordinary carbon steel being turned into the equivalent of a low alloy steel, whilst the treated low alloy behaves in many respects like a high alloy steel. Thus

important amounts of nickel, chromium and molybdenum can be saved, the machinability in all cases being similar to that of ordinary carbon steel.

The following table gives the results obtained with S.A.E. 1,024 steel containing 1.53 per cent. Mn. and .25 per cent. C. The additive agent is stated to contain Va., but its composition is not given.

	Untreated	Treated (4lb. per ton)
Yield point	104,300	206,300
Tensile	119,900	215,600
Elongation (2 m.)	19.3	13.8
Reduction in area	60.7	56.60
P value (1)	96.82	111.04
Hardenability index (2)	J-40-2.8	J-40-9.3
Critical diameter (oil quenched) (1) (3) ...	$\frac{1}{2}$ m.	$1\frac{5}{8}$ m.

(1) *P* value is a figure of merit for tensile properties and is defined as

$$P = \frac{(T+6R)}{5}$$

$$\text{where } T = \frac{(\text{Tensile in psi})}{1{,}000}$$

R = reduction in area percentage.

$P = 100$ is a fair average for alloy steels, fully quenched and drawn at 900-1,000°F. Higher values denote superior tensile properties. By specifying minimum tensile and *P* values, the relationship between strength and ductability is expressed by a single number.

(2) The hardenability index (last two figures) denotes the distance in 16ths of an inch from the end of the standard end quench test bar at which the Rockwell C. hardness (first two figures of code) is reached (S.A.E., 1943 Handbook, p. 323). Thus J-40-2.8 denotes that Rockwell C. 40 is found at 2.8 sixteenths from the end. At larger distances, the hardness would be less. For the treated steel the hardenability index is J-40-9.3, *i.e.*, Rockwell C. 40 hardness is found at 9.3 sixteenths of an inch from the end. Now at this end section, the hardness of both untreated and treated sample is the same (in this case 48 C), the hardness of the treated sample falls off less rapidly with end distance, *i.e.*, the hardenability has been increased.

(3) Critical diameter (1) (oil or water quenched) denotes the (*P*) maximum diameter of a round bar which will harden at the centre to the Rockwell C. hardness of the hardenability index (in this case Rockwell C. 40).

For the above tests, both the tensile and hardenability bars were annealed at 1,650°F. and oil quenched at 1,600°F., the tensile bars being drawn at 450°F.

The author gives further test results on a series of .2 per cent. C. and .4 per cent. C. steels with a manganese content varying from .5 to 1.75 per cent., some of the specimens containing appreciable quantities of Ni. and Cr. (1-3 per cent.). Unfortunately, the composition of the additive is only given in two cases (Nos. 1 and 4, Table I).

In each case the additive treatment resulted in a very marked improvement in the hardenability of its material, coupled with increased mechanical strength when in the quenched and drawn state.

For any other state, however, the treatment may reduce the mechanical strength.

The very large increase in tensile noted for S.A.E. 1,024 is exceptional, the improvement in the case of the other steel tested being only of the order of 10-30 per cent.

Although the commercial application of additive treatment in the U.S.A. only dates from 1938, the Buick Motor Car Company has already turned out thousands of cars containing vital parts made of treated manganese steel (axles, gears,

transmission shafts, steering knuckles and arms, etc.). The results have been entirely satisfactory.

A co-operative research programme is now in progress for the co-ordination of further laboratory and service tests on a series of nine basic open hearth steels.

The large amount of experimental work already available is collected in a report by the American Iron and Steel Institute, entitled " Special Alloy Addition Agents," November, 1942.

In conclusion, it should be pointed out that uniform melting is of great importance in the use of additive agents. The optimum quantity should be determined in each case and added in the ladle. (Ingot mould addition is also possible and greatly facilitates experimental work.)

Smaller additions than the optimum may be extremely beneficial, but there is some doubt as to the uniformity of action. Increasing the amount beyond the optimum tends to lower mechanical properties.

In spite of the exacting requirements, American steel mills have demonstrated their ability to melt heat after heat with as good a uniformity as for untreated steels.

Aluminium Alloy Forging Dies. (R. F. Duff, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, pp. 23-24.) (118/2 U.S.A.)

In the mass production of aluminium alloy forgings made of 14S extruded stock, the formation of blisters on the surface of the finished product has led to the rejection of an appreciable number of parts.

It was at first thought that the trouble was associated with the use of extrusions as stock material, but investigations carried out by the S.A.E. War Engineering Board has shown that the blistering is also found in forgings made of standard rolled stock if the metal is worked too rapidly (excessive heat generated by friction in the die).

With extruded stock, the rate of deformation has therefore to be decreased and this can easily be brought about by the addition of fullers to the dies, lighter hammering, proper use of lubricants and good die finish. With these precautions, satisfactory forgings are possible, provided the original 14S material adheres to specification and especially does not contain an undue amount of silicon. A satisfactory chemical composition is given below.

Si.	Cu.	Mn.	Mg.	Al.
.9 per cent.	4.40 per cent.	.80 per cent.	.40 per cent.	Rest.

The impurities in the above are controlled by Federal Specification (QQ/A-367 C). Leading producers of 14S alloy have agreed to control the composition of this material to the above standard for both rolled and extruded stock.

A satisfactory lubricant is a mixture of 50 per cent. lard oil plus 50 per cent. distillate and is applied to the die surface either by spray, swab or air blast. A small amount of graphite is occasionally added. It is interesting to note that a common cause of die failure are cracks resulting from the explosion of the die lubricant in the corners and angles of the impressions.

Die finish is of very great importance since it affects both the life of the die and the quality of the product. All angular irregular surfaces must be avoided and the final polishing marks must be in the direction of the flow of the forged material. The finish impression should be placed as near the centre of the die as possible and the impression cut so that the metal flow of the forging is at right angles to the grain of the die.

The thickness of the flash must be such as not to restrict the flow of material. Very thin flashes are more economically and rapidly trimmed, but for best die life flashing of about .04 inch are recommended.

A die should be used for as long a run as possible (5-10,000 pieces).

If the die is taken down and reset after short runs, the life is appreciably shortened, even if every care is taken in the resetting. The die material for aluminium alloy forgings is usually the same as employed in the production of steel forgings. It is used in the heat treated condition with a hardness ranging from 43 to 63 Shore, depending on depth of impression. Stress relief after a period of use is stated to be beneficial.

It is interesting to note that the life of the normal steel die is appreciably shorter when turning out aluminium alloy forgings than when making steel forgings. It is possible, however, that a new die material specially suited to the peculiarities of aluminium forgings may be developed in the near future.

In conclusion, it should be emphasised that in die forging the human element plays a very considerable part and the best designed tools can be ruined if the setting is inaccurate or the preheating of both die and material carried out carelessly.

Working cold material is especially harmful to the life of the die and will also produce erratic physical properties in the forging. In this connection it should be pointed out that even under optimum conditions, the finished heat treated and artificially aged forgings made of extruded stock have a lower tensile and yield strength but greater elongation than the original extrusion after similar heat treatment and ageing. This is due to difference in grain structure of extruded and rolled 14S material leading to abnormally high values of the mechanical properties of the former after heat treatment.

The forging operation causes more recrystallisation during subsequent solution heat treatment with the result that the final mechanical properties of the forging approximate to those of the rolled rather than extruded stock.

Employment of extruded stock thus does not lead to an improvement in strength of forging but is a matter of great convenience, besides conserving forging stock for special purposes.

An Electronic Defectoscope. (A. Gozelik and others, Met. Ind. Review, U.S.S.R., Vol. 19, No. 7, July, 1939, pp. 67-70.) (118/3 U.S.S.R.)

The magnetic field surrounding a magnetised specimen becomes distorted in the presence of cracks and flaws and this distortion can be utilised for detecting faults of this nature. Instruments of this type are called defectoscopes, the most common depending on visual examination (iron powder method, magnaflux). The variation in field strength can also be obtained directly by measuring the change in the force of attraction on a small ferromagnetic probe passed over the surface of the specimen, or indirectly by measuring the change in E.M.F. induced in a small search coil moving through the field at constant speed. The authors are specially interested in the testing of steel rails for cracks and flaws, where it is essential that the detector can pass over the rails at a reasonably high speed. This obviously rules out the iron powder method. Measurements based on the force of attraction of a small probe, quite apart from mechanical difficulties, are also limited as to speed of translation of the probe (time lag of magnetic saturation). Finally, the induced E.M.F. method would be difficult to apply in this case since it depends on a constant rate of translation. The authors have therefore proposed an alternative method, in which the variation in magnetic field strength close to the surface of the probe is measured electrically. For this purpose, a special valve consisting of a straight wire hot cathode placed at the centre of a semi-cylindrical anode is employed. The glass bulb has a flat top, the cathode being in close proximity to its internal surface and facing the concave surface of the anode. The latter is connected to the grid of a normal amplifying valve, the anode current of which is measured on a milliammeter or cathode ray oscillograph. The grid bias and loading resistances of the circuit are such that when the detector valve is in a constant magnetic field, the anode current of the amplifier is zero. On passing the flat glass top of the detector over the specimen

under examination, any variation of field strength from this normal distribution changes the path of the electrons in the detector and thus alters the grid voltage of the amplifier with the result that the recorder operates.

The instrument is free from inertia and thus can be operated at any speed of translation relatively to the specimen. In addition, the sensitivity can be varied over wide limits by simply adjusting the voltage applied to the cylindrical anode or the heating current of the wire cathode. It is stated that the new defectoscope easily detects flaws of the order of .1 per cent. of the total cross-sections of a steel rail, the track being passed over at a speed of 25 km./hour. Obviously, this type of detector also lends itself to manual operation and the fact that it can be easily constructed in any wireless laboratory is an added advantage.

Instrument for Measuring the Wall Thickness of Long Tubes. (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 164.) (118/4 Germany.)

The accurate measurement of the wall thickness of tubes presents considerable difficulties if the tube is of appreciable length.

The usual type of mechanical caliper gauge suffers from the drawback that any deflection of the overhung arms under gravity falsifies the measurements. Moreover, it is very difficult to ensure a constant contact pressure with instruments of this nature. These difficulties have been overcome by a new type of caliper gauge designed by the Junkers firm which has given excellent results in practice and which can check the wall thickness of tubes or plates over a span up to 10 feet.

The gauge essentially consists of a U-shaped feeler, one leg of which slips inside the tube and contacts the inner surface at the extremity of the limb. For this purpose the tube is supported horizontally above a parallel rail along which moves a carriage carrying two dial gauges as well as the pivoted support at the base of the U feeler. This base is provided with a balance weight by means of which the contact pressure of the inner feeler on the lower internal surface of the tube can be adjusted. Directly in line with the inner feeler, but contacting on the outer surface of the tube, is a second feeler attached to a spring-loaded plunger moving vertically in a slide attached to the carriage. One of the two dial gauges previously mentioned is attached to this slide whilst the feeler end of this gauge contacts the second limb of the caliper gauge. The second dial gauge is supported by the carriage and records the vertical displacement of the slide. At the beginning of the test a standard distance piece is inserted between the internal feeler of the caliper gauge and the external feeler attached to the slide, both dial gauges being set to zero. The tube is then inserted and dial gauge No. 1 will read directly the difference (+ or −) of the wall thickness from the standard dimension. Similarly, dial gauge No. 2 will indicate the degree of parallelism of the outer wall with the base line. It will be noted that in this arrangement any deflection of the U-shaped limbs of the caliper gauge under gravity is allowed for and that the contact pressures of external and internal feelers are constant.

A New Approximate Method for Measuring the Percentage Elongation of Metals at Fracture. (A. I. Mikheilov, Metal Industries, U.S.S.R., Vol. 19, No. 7, July, 1939, p. 71.) (118/5 U.S.S.R.)

The author claims to have established an empirical relationship between the percentage elongation δ_{10} at fracture (as obtained in the tensile test on cylindrical specimens with a length equal to 10 times the diameter) and the deformation of the specimen when undergoing an indentation test of the Brinell type.

If D = diameter of ball.
d = diameter of central spherical indentation.
S = diameter of extreme bulge surrounding central indentation.
F = surface area of central spherical indentation.

$$\delta_{10} = C\,(d/D^2K) \times 100$$

where $K = S/F$.

C = empirical constant,
= 2.5 for carbon steels.

The indentation test is carried out with a 5 mm. ball at 750 kg. At least two separate determinations should be carried out.

Transporting War Materials—Packaging Problems. (Chemical and Engineering News, Vol. 21, No. 20, October 25, 1943, pp. 1745-1746.) (118/6 U.S.A.)

The new package is a waterproof covering of secret composition, but definitely a plastic, which is applied directly by spraying and which will seal off any gaps and holes. The purpose is to put a waterproof skin over metal parts and to eliminate crating. It is inexpensive and easy to apply. On medium bombers, shipped as deck cargo, use of this spray method saves 1,000 man-hours per plane over here, and 200 man-hours at the destination. Instead of crating and laboriously protecting the plane from spray, the whole aeroplane is covered with the plastic skin and shipped. The covering is easily removed by peeling.

Although the plastic is applied by simple spraying of a solvent solution, a definite technique must be used. If the object has openings, the spray is first directed obliquely across the surface, using high pressure guns. This causes the plastic to form strings or webs across any openings. Next, a regular low-pressure spray deposits the coating over the webs already formed and the operation continues until the package is completely covered. Secret of the process, apart from the actual composition, is the rapidly drying solvent, so rapid that the plastic webs across all openings form practically immediately. The plastic shrinks upon drying, forming a skin-tight covering. To cover a medium bomber would require only 25 gallons of the solution, and at a reported cost of only a dollar a gallon, it is easily seen that savings are coming in army packaging. So new is the development that the first treated aeroplanes were, at the time of the meeting, on the high seas. As a test, the Air Corps dumped covered parts in Boston Harbour for five weeks just to make sure that the covering was really waterproof. Another advantage of the plastic is that there is no scarring or corrosion of precise metal parts, and though the solvent is inflammable, the plastic itself is not.

Aircraft Oil Systems—High Altitude Problems. (H. Moermann, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, Transactions, pp. 394-396, 407.) (118/7 U.S.A.)

Engine oil pumps are usually of the gear wheel type and provided the percentage of air entrained remains constant, the delivery of such pumps does not vary appreciably with altitude (intake pressure) up to about 20,000 feet. Above 30,000 feet, however, the delivery falls off appreciably, and at 40,000 feet may amount to less than 50 per cent. of the ground level performance. The reason for this drop is the formation of gas bubbles in the intake together with the expansion of any entrapped air already present, and can obviously be avoided by " supercharging " the oil tank. The simplest method would be to employ the scavenge oil pump for this purpose and sealing off the oil vent in the tank by means of a check valve. If the latter is set to maintain a pressure of about 2 psi above atmosphere, a satisfactory functioning of the oil pump up to at least 40,000 ft. can be assured. As there appears to be some objection to the use of such pressurised oil tanks on combat planes, the alternative of providing a " booster " pump in the intake circuit suggests itself. Such a pump, if of the centrifugal type would not be sensitive to entrapped air, but, if engine driven, would necessitate a redesign of the end cover plate. An electrical drive, on the other hand, would entail an appreciable power consumption and weight,

especially with cold oil. Even if a booster is fitted, it is obviously an advantage to keep the proportion of entrained air as small as possible.

The source of contamination is in the engine itself and cannot be avoided, and the return flow from the scavenge pump to the tank always contains a considerable proportion of air. This contaminates the oil supply, with the result that the pressure pump now has to handle aerated oil.

As already stated, provided the proportion of air remains constant, the delivery of the pump is only affected at altitudes above 20,000 feet, but this delivery is appreciably less than would be the case with air free oil (13 per cent. reduction for 10 per cent. air addition).

Moreover, with such contaminated oil, it is no longer possible to maintain the constant delivery pressure so essential for engine operation.

(This difficulty does not arise in the case of the scavenge pump and satisfactory operation of the latter can be assured at all altitudes by simply making the pump big enough.)

A simple device for ensuring a marked reduction in air content consists of fitting a coiled tube to the return end of the scavenge circuit at the top of the oil tank (air space). This tube is provided with holes along the inner surface of the spiral through which the air can escape, the oil being forced against the outer wall of the spiral by centrifugal action.

The Sharples " Vortex " air separator functions on a similar principle, but dispenses with a guide tube.

Either type of separator ensures that the returned oil does not contain more than 5 per cent. of entrained air.

A Technologist Looks at the Future. (C. R. Burch, Nature, Vol. 152, No. 3,862, Nov. 6, 1943, p. 525.) (118/8 Great Britain.)

From the author's concluding statement:—

" What of education in the future? I look on it as an important indirect contribution to our long-term research policy to provide in our schools facilities for the keenest, at any rate, to follow up almost whatever kind of extra curricular activity may strike their interest—and this without binding themselves in any way as to their future careers. This foretaste of achievement in following up individual interest provides, I believe, the strongest possible stimulus to education, and if the nature of the interest should change, the stimulus remains the some.

" The cultivation of enthusiasm I take to form the first requisite in that far-sighted educational policy and that courageous long-term research policy to which I look forward in the future, after the war."

A.B.A. Rotor Balancer for Gyroscope and Supercharger Impellers. (Inter Avia, No. 884-885, 14/9/43, pp. 24-25.) (118/9 Sweden.)

1. The instrument division of A.B.A., the Swedish airline, has developed a control apparatus for the checking and balancing of the rotors of aircraft gyros; the design of the apparatus has been shown by experience to be suitable also for balancing larger rotors, such as supercharger impellers, etc.

2. The design of the A.B.A. balancer is as follows:—The rotor with its bearings is placed in a sturdy frame, with its axis vertical; the frame is supported by three blade springs, which allow the upper end of the axis to make practically undamped oscillations. Therefore, when an unbalanced rotor is brought to rotate, the upper end of the axis describes a small circle, the diameter of which is proportional to the magnitude of the unbalance force. The upper part of the frame consists of a hollow cylinder which constitutes one plate of a condenser. Inside the cylinder is the other plate of the condenser which assumes the form of two segments that can be turned in a stator. If an electrical voltage is applied

to the condenser, the movements of the upper part of the frame bring about variations in the capacity of the condenser, and consequently a varying voltage. The variations in voltage are amplified and applied to a cathode-ray tube to give vertical deflections of the rays. The vertical deflection of the ray is therefore a measure of the unbalance force. The position of the c.g. is determined by a light ray thrown on the rotor, which is polished on one side and dull on the other. The ray reflected by the polished side is used to act upon a photo-electric cell, the impulses of which are amplified and brought to the cathode ray tube to give horizontal deflection.

By introducing an impulse generator between the photo cell and the cathode-ray tube, it is possible to determine the exact position of the rotor unbalance with the aid of the rotable condenser. In order to eliminate the disturbances caused by the bearing of the gyro, a filter is used which is tuned to a selected test frequency (which corresponds to the frequency from unbalance); for aircraft gyros the frequency of 9,000 r.p.m. has been chosen which is controlled by a stratoscope. A photograph shows three different installations, of which the smallest is intended for the rotors of aircraft gyro instruments (weight 0.7 lb.), the medium one for marine gyros (weight 5 lb.), and the third for aircraft engine supercharger impellers (weight from 4.2 to 10.9 lb.).

Some Considerations on the Diminution of Resistance at Supersonic Speed by the Chilowsky Process. (D. Riabouchinsky, Comptes Rendus, Vol. 208, No. 26, 26/6/39, pp. 2037-2040.) (118/10 France.)

At the beginning of 1915, Chilowsky proposed to reduce the drag of high speed projectiles by projecting a flame ahead of the projectile and thus raising the temperature of the surrounding medium. The process was patented by him in 1917 (French Patent No. 503,934) and the beneficial effects confirmed by Huguenard (see Abstract No. 118/11). In the present note the author reinvestigates the problem from a theoretical standpoint, on the assumption that the drag R is given by the equation

$$R=\rho V^2 s f(V/c) \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where s = max. section of projectile.
V = speed of translation.
c = speed of sound.
$k=f(V/c)$ = drag coefficient.

Any effect of Reynolds number is thus neglected.

For a given projectile and speed of translation, the drag thus varies as the product of the local density with a function of the Mach number. If the suffix f denotes characteristic of the air after heat addition, it can easily be shown that

$$R_1/R=(\lambda_1/\lambda)(V/c_1/Vc)^2\,[f(V/c_1)/f(V/c)]$$

where

$$(V/c_1)/(V/c)^2=(\lambda RT)/(\lambda_1 R_1 T_1)$$

If λ and R remain unchanged, we thus have

$$R_1/R=[f(V/c_1)/f(V/c)]\times(V/c_1)^2/(V/c)^2$$

and

$$(V/c_1)/(V/c)^2=T/T_1$$

The author considers a standard artillery projectile exhibiting the following variations in the resistance coefficient k with Mach number V/c under standard condition ($T=288°C_A$).

V (m./sec.)	$V/c=M$	$k=R/(\rho V^2 s)$
256	·75	·12
575	1.68	·33
1026	3.0	·25

The problem is to find T_1 so that the resistance R_1 at 575m./sec. becomes equal to that at 256 m./sec. at 288°C. (lowering of effective Mach number).

We have

V	V/c	$f(V/c)$	V/c_1	$f(V/c_1)$	R_1/R	$(R-R_1)/R$	T_1/T	T
575	1.68	.33	.75	.12	.072	.928	5.03	1449°C_A
1026	3	.25	1.68	.33	.414	.586	3.18	916
1026	3	.25	.75	.12	.030	.970	16.0	4608

It will be noted that a temperature of 1,450°C_A. is sufficient to reduce the drag coefficient to subsonic value and reduce the total drag at 575 m./sec. by 93 per cent. The two other calculations in the table refer to a projectile speed of 1,026 m./sec. (Mach number=3). In order to reduce the drag coefficient to subsonic value in this case requires a temperature of 4,600°C_A. which is clearly impracticable. If, however, we are satisfied with a reduction in equivalent speed to 575 m./sec. a temperature of 916°C_A. suffices and this will produce a 59 per cent. reduction in drag, although the drag coefficient k has actually risen from .25 to .33.

From the above it appears that the proposal certainly merits consideration in high speed projectiles (Abstraction Note—rockets?). Applied to lifting surface (wings) however, not much will be gained unless the equivalent speed can be reduced to subsonic value. This is due to the fact that in the supersonic range the lift collapses and a reduction of drag alone is of no value.

Since an air temperature of about 1,500°C_A. represents an upper limit by the method of flame projection, the scheme is only applicable to Mach numbers less than about 1.5.

High Speed Wind Tunnels and Their Application to Ballistic Research. (E. Huguenard, La Technique Aeronautique, Vol. 15, No. 37, 15/11/24, pp. 346-355, and No. 38, 15/12/24, pp. 378-392.) (118/11 France.)

The generation of a high speed air jet requires a considerable amount of power, even if the cross section of the jet is restricted. Thus, neglecting compressibility, a speed of 200 m./sec. generated from rest corresponds to a depression of 2,500 mm. of water ($\frac{1}{4}$ atmosphere) and a work input of over 700 h.p. per square foot of jet section. (Allowing for compressibility, the speed for the same pressure difference is raised to 217 m./sec. and the work input increased correspondingly.) This can be reduced to about 200 h.p. by fitting an expanding nozzle to the working section of the tunnel (atmospheric entry), the extractor fan being placed at the large diameter exit section. In this manner, the pressure head across the fan is decreased materially, provided the cone angle of the diffusor is small ($\sim$ 6°) and the walls very smooth.

A high speed wind tunnel of this open jet type (Eiffel) has been set up at the Cork Field in the U.S.A.

Since, under these conditions, the h.p. per unit area of jet varies roughly as V^3, an increase of speed from 200 to 500 m./sec. would necessitate a 16-fold increase in power. It is obvious that the provision of a reasonable working section by this means would necessitate a very considerable power plant.

Prandtl has suggested overcoming this difficulty by building the tunnel in the closed form. After building up the high speed gradually, the fan would only have to overcome the friction losses in the circuit in order to maintain the high speed circulation. Since, however, all the friction losses ultimately are converted into heat, the air stream will assume a very high temperature unless adequate precautions are taken. Preliminary experiments have indicated that the provision of an adequate cooler will present considerable difficulties, and this together with the complication arising from the closed section have led the author to investigate the alternative scheme of providing the high speed jet by the sudden release of compressed air from a tank. This method is obviously unsuited for large working sections. If, however, we are satisfied with drag measurements at zero incidence, the free jet diameter need not exceed the shell calibre appreciably and a 10 cm.

jet will suffice for a 75 mm. shell. (This applies especially if only relative drag measurements associated with small changes in the shell contour are required.) Naturally, the speed of efflux will vary during the experiment, but this is no great drawback provided simultaneous readings of drag and speed can be taken. With a free jet, this presents no great difficulty. The absence of any walls facilitates the taking of striation photographs from which the air speed can be estimated with sufficient accuracy (curvatures of shock wave at projectile or displacement of sound wave generated by an explosive spark) whilst the corresponding drag is obtained from an ordinary piston indicator actuated by an extension rod attached to the base of the shell.

The author has carried out a large number of experiments on 75 mm. shells with an apparatus of this type, using a tank of only 7 m.^{3} capacity pumped up to a pressure of 6.5 kg./cm.^{2} (atmospheres). The jet is obtained from a Laval type nozzle converging to 80 mm. at the throat and diverging to a final section of 98 mm. With an initial temperature of 15°C. this should produce a theoretical initial jet speed of 500 m./sec., the recorded maximum speed being of the order of 450 m. sec.

With a tank of 7 m.^{3} capacity, this speed drops to 200 m./sec. in about 6 seconds, speeds above 300 m./sec. being maintained for about 3 seconds.

As the experiments were carried out at the central power station of the Paris Compressed Air Supply Co. provided with 12,000 h.p. compressors, this tank could be refilled in a few minutes.

Since with each filling at least 5 records can be taken, the drag/speed relationship can be obtained very quickly. It is stated that with the same set-up the results are very consistent and modifications due to variation in shell shape are readily discernable. Moreover, the shape of the shock wave at the nose of the shell (which is readily visible by eye) provides an excellent check for the symmetrical mounting of the projectile in the air stream.

The results obtained with standard 75 mm. shells are in good agreement with drag estimates based on firing trials, and the author hopes that in view of the expense and complicated nature of such trials, the simple method of measuring drag directly will be made use of extensively in further ballistic research.

The provision of a larger tank (250 m.^{3} capacity) is under contemplation. This would enable similar experiments to be carried out with an air jet 60 cm. in diameter.

The author points out that speeds in excess of 500 m./sec are best obtained by raising the temperature of the compressed air in the tank. Thus an initial pressure of 6.5 kg./cm.^{2} is raised to 11.6 kg./cm.^{2} by warming the air to 250°C. The maximum theoretical efflux speed now becomes 728 m./sec. The necessary temperature rise in the tank can be considerably lowered, if a small quantity of steam is added to the air. In this case an original air temperature of about 120°C. at a pressure of about 8 kg./cm.^{2} should suffice to produce an efflux speed of over 700 m./sec (latent heat of steam lowers the adiabatic index of expansion and prevents rapid cooling).

Of special interest are the results obtained by the author on shells of the Chilowsky type fitted with a flame projector in the nose.

The standard 75 mm. F.N. projectile has a resistance at zero incidence of 50 kg. at 480 m./sec. This can easily be halved by the combustion of 10 gm. of phosphorus suitably placed in the nose of the shell. In the case of another type of 75 mm. shell (D. 1917) the reduction by flame projection is even more marked (from 20 kg. to 8 kg. at 480 m./sec.). According to the inventor, the drag reduction is brought about by the heated air becoming less dense. The effect is, however, mainly due to a lowering of the effective Mach number, the speed of sound being raised by the heat transfer.

The author does not state how long the combustion of the 10 gm. of phosphorus lasts. It is stated, however, that an increase in range of the shell of the order

of 25 per cent. was estimated on the basis of the drag measurements and that this was confirmed by actual firing trials.

(ABSTRACTOR'S NOTE.—In the case of rocket shells, there should be no difficulty in providing the necessary heat over a considerable part of the trajectory.)

Theoretical Examination of Axial Fan Performance. (H. Struve, C.A.H.I. Report No. 295, Moscow, 1937.) (Available as R.T.P. Translation No. T.M. 1,042.) (118/12 U.S.S.R.)

In the first part of the paper, the author deduces the aerodynamic forces acting on a moving blade grid assuming axial entry and the absence of friction. As is well known, the resultant force under these conditions acts perpendicularly to the bisector of the angle between the respective relative velocities W_1 and W_2 at entrance and exit to the grid, blade interference being neglected.

The static pressure difference across the grid is given by

$$H=\rho c_u (u-c_u/2) \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where $u=\omega r$=speed of translation of grid.

c_u=tangential component of absolute velocity at exit.

The bisector of the angle between W_1 and W_2 referred to above will make an angle β with the direction of motion and is given by

$$\tan \beta=c_a/(u-c_u/2) \quad . \quad . \quad . \quad . \quad . \quad (2)$$

where c_a=absolute velocity at entry to grid (assumed axial).

Using this direction as that of the relative wind, the problem is to find an actual profile which when set at an angle of attack α will produce the necessary pressure difference most efficiently.

In practice, the dimensions of the fan, speed of operation, delivery and pressure head required are usually given. Thus c_a and u are known.

Substituting an actual profile will modify the pressure difference given by (1), due to the introduction of friction. The actual head will be given by

$$H_a=\eta\rho c_u (u-c_u/2) \quad . \quad . \quad . \quad . \quad . \quad (3)$$

$$\text{where } \eta=k_a k_u \tan \beta \quad . \quad . \quad . \quad . \quad . \quad (4)$$

$k_a=c_y \cos \beta-c_x \sin \beta$.

$k_u=c_y \sin \beta+c_x \cos \beta$.

c_y=lift coefficient, c_x=drag ,, } of profile and are functions of the angle of attack α.

From physical considerations it can be established that the pressure produced by the fan as a whole is equal to that produced by the blade tip element.

Equation (3) can therefore be solved for c_u at the external radius R provided η is known.

Since η is a function of β and α (equation 4) and therefore of c_u (equation 2), the solution can only be carried out by iteration.

Knowing c_u at R, the values at any other radius follow from the relation

$$c_u r=\text{constant},$$

which must hold if the flow is to be confined to co-axial cylindrical shells (no cross flow at exit).

The pressure difference produced by the profile element at an angle of attack α (chosen to make η a maximum) is given by

$$H=\rho k_a \{ (u-c_u/2)/\cos \beta \} (bi/2\pi r) \quad . \quad . \quad . \quad (5)$$

where i=number of blades (chosen for structural reasons).

b=width of aerofoil.

Equating (3) and (5), the blade width at any radius can be determined.

Since blade interference is neglected, the method will apply to any number of blades.

Similarly the method is readily adapted to estimating effect of operative conditions on fan performance, assuming that constancy of circulation along the blade (implied by the condition $c_a r = \text{const.}$) is maintained.

The author gives experimental results on the performance of a number of fans, employing profiles of various type and blade numbers up to 12. For blade numbers up to 6, the computed and actual performance are in reasonable agreement. As was to be expected, however, the neglect of the blade interference causes considerable deviation for higher blade numbers (especially in pressure difference).

Although an attempt is made to allow for this by a correction factor, the author concludes that this phenomenon will require more detailed study before the theory of fans can be considered as satisfactory.

Attention is also called to the pronounced effect of entry conditions on fan performances, which has not been considered in the present report.

LIST OF SELECTED TRANSLATIONS.

No. 64.

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AERO AND HYDRODYNAMICS.

TRANSLATION NUMBER AND AUTHOR.	TITLE AND REFERENCE.
1979 Junkers	*Maintaining Laminar Flow on a Profile.* (*German Patent* 734,937.) (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 42-43.)
1980 Helmbold, H. B. ... Keune, F.	*The Systematic Development of Profile Types and the Method of Singularities.* (L.F.F., Vol. 20, No. 5, 16/4/43, pp. 77-80.)
1983 Helmbold, H. B. ...	*Contribution to the Profile Theory—Part VI.* (L.F.F., Vol. 20, No. 6, 30/6/43, pp. 196-206.)
1988 Ferri, A.	*The Influence of Reynolds Number at High Mach Numbers.* (Atti di Guidonia, 67-69.) (Luftwissen, Vol. 10, No. 3, March, 1943, pp. 90-91.)
1997 Tollmien, W. ...	*On the Transition from Subsonic to Supersonic Flow.* (Z.A.M.M., Vol. 17, No. 2, April, 1937, pp. 117-136.)

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1977	Koenig, M. ...	*Stress Concentration in Cold Riveted Joints Under Load.* (Schweizer Archiv., Vol. 3, No. 2, Feb., 1943, pp.41-46.)
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2	14424	U.S.A. ...	*Compass Courses are Easy.* (J. R. Hoyt, Flying, Vol. 33, No. 2, August, 1943, pp. 96, 110-112.)
3	14435	U.S.A. ...	*Navigation Simplified.* (V. C. Jones, Flying, Vol. 33, No. 2, August, 1943, pp. 156, 196.)
4	14461	U.S.A. ...	*C.A.A. Examination Course for Pre-Flight Aviation Students.* (A. J. Rosenberg, American Aviation, Vol. 7, No. 5, August 1, 1943, p. 54.)
5	14466	G.B.	*The Work of the R.A.F. (Official Figures).* (Engineering, Vol. 156, No. 4,052, September 10, 1943, p. 213.)
6	14660	Germany ...	*The N.S. Flying Corps (Pre-Military Training Centre for German Fliers).* (F. Kilian, Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 109-110.)

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7	14788	U.S.A. ...	*U.S. First and Only Military Flying School for Women.* (A. L. Harting, Air Services, Vol. 28, No. 7, July, 1943, pp. 30-32, 48.)
8	14814	G.B.	*Navigation Without Tears.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 330-331.)
9	14815	G.B.	*Women as Ground Crews.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 332-333.)
10	14825	U.S.A. ...	*American Commitments—the Rôle of the U.S. Air Forces.* (General H. Arnold, Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 326-327.)
11	14975	U.S.A. ...	*Ordnance with the Air Force.* (H. J. Conway, Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, pp. 338-340.)
12	15173	G.B.	*Navy's Instrument-Flying School (Beam Landings).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 387.)
13	15186	G.B.	*R.A.F. Technical Training Command Halifax Instructional School.* (Flight, Vol. 44, No. 1,815, 7/10/43, pp. 402-403.)
14	15299	U.S.A. ...	*Prelude to Flight and Work of Pre-Flight Schools.* (D. H. Munson, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 24-26, 144.)
15	15302	U.S.A. ...	*"Sea-Birds"—The Coast Guards' Aviation Unit.* (R. Williams, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 32-34, 139.)
			Strategy and Tactics.
16	14324	U.S.A. ...	*Tactical Bombing—Lessons from Sicily.* (F. A. de V. Robertson, Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 281.)
17	14363	Germany ...	*Germans Build Blister Hangars to Protect Fighter Aircraft (Photo).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 291.)
18	14403	Germany ...	*The R.A.F. Technique for Bombing Germany.* (R. Sydney, Flying, Vol. 33, No. 2, August, 1943, pp. 21-23, 172-174.)
19	14412	U.S.A. ...	*Control of Flooded Areas by Air Patrols.* (M. Roddy, Flying, Vol. 33, No. 2, August, 1943, pp. 49-50, 192.)
20	14568	G.B.	*Surrender of the Italian Fleet.* (Engineer, Vol. 176, No. 4,575, Sept. 17, 1943, pp. 223-225.)
21	14754	G.B.	*Two-Way Bomber Attack on Germany (Map).* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, pp. 336-339.)
22	14756	G.B.	*Grass Used for Making German Camouflage Nets and Mats.* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 339.)
23	14826	Germany ...	*German Defensive Tactics in the Battle of Germany.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 325.)

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24	15153	G.B. ...	... *A Reconstruction of Combat Tactics.* (Aeronautics, Vol. 9, No. 2, Sept., 1943, pp. 38-41.)
25	15161	G.B. ...	... *Fighter Tactics on the Russian Front.* (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 69.)
26	15174	G.B. ...	... *Royal Norwegian Air Force in Iceland.* (Flight, Vol. 44, No. 1,815, 7/10/43, pp. 388-390.)
27	15185	G.B. ...	... *Air War on German Transport System.* (V. L. Gruberg, Flight, Vol. 44, No. 1,815, 7/10/43, pp. 399-401.)
28	15254	U.S.A.	... *Parachute Delivery of Vitally Needed Small Parts.* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 219.)
29	15300	U.S.A.	... *Skip-Bombing.* (W. Gordon, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 27-29, 142.)

General Design and Equipment.

30	14328	Germany	... *German Aircraft Structures (Use of I-Section Wing Spars: Fuselage Construction Characterised by Few Formers and Numerous Stringers).* (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, pp. 289-292.)
31	14337	U.S.A.	... *Engineering by Subtraction (Simplifying Design and Employing Armour as an Integral Part of Structure).* (N. V. Davidson, Aviation, Vol. 42, No. 6, June, 1943, pp. 165, 333-334.)
32	14341	Germany	... *Elevator Control Mechanism of the Junkers Ju.* 88 *(Design Detail).* (Aviation, Vol. 42, No. 6, June, 1943, p. 187.)
33	14342	U.S.A.	... *Details of the Tubing Installation of the Fuselage De-Icing Equipment of the Boeing B-17.* (Aviation, Vol. 42, No. 6, June, 1943, p. 189.)
34	14343	Germany	... *Inspection Plates on the Junkers Ju.* 88 *(Sketch).* (Aviation, Vol. 42, No. 6, June, 1943, p. 191.)
35	14356	U.S.A.	... *Novel Design Features of North American P-51.* (Aviation, Vol. 42, No. 6, June, 1943, pp. 234-237, 361-363.)
36	14364	Germany	... *Structure of German Aeroplanes (M.A.P.) Reports.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, pp. 294-299.)
37	14389	U.S.A.	... *Ring Springs Used in Plane Shock Struts of Ju.* 88. (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 88.)
38	14413	Germany	... *Dive-Bombing Brake of the Dornier Do. 217E.* (Flying, Vol. 33, No. 2, August, 1943, p. 51.)
39	14434	U.S.A.	... *The Light Plane for Field Artillery Observation.* (S. A. Ilitzky, Flying, Vol. 33, No. 2, August, 1943, pp. 149-152, 199.)
40	14544	Germany	... *Experiences with the Electrical Installations of the Luftwaffe in Wartime Emergency Construction.* (Steinmann and Glotzner, Flughafen, Vol. 11, No. 4, May, 1943, p. 6.)

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41	14656	Germany ...	*Sound Proofing of Aircraft Cabins.* (F. Huep, Junkers' Journal, Vol. 13, No. 12, Dec., 1942, pp. 121-126.)
42	14658	Germany ...	*Mechanical Device for Projecting Pilot's Seat Fitted with Parachute Outside Aircraft. (Junkers Patent No. 711,045.)* (Junkers Journal, Vol. 13, No. 12, Dec., 1942, pp. 130-131.)
43	14686	G.B.	*A New Westland Electrically-Operated Remote Control Unit.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 472.)
44	14690	G.B.	*Integral Fuel Tanks in the Westland Whirlwind Fighter.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 476.)
45	14695	G.B.	*The Structures of German Aircraft—Constructional Features and Weight Analysis (M.A.P. Reports).* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 495-501.)
46	14766	G.B.	*German Aircraft Structures (M.A.P. Reports).* (Flight, Vol. 44, No. 1,812, 16/9/43, pp. 315-319.)
47	14770	G.B.	*Two German Patents on Installation of Instrument Panel (at Rear of Pilot).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 310.)
48	14810	G.B.	*Bullet-Proof Glass Fitted to Flying Fortress.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 319.)
49	14913	G.B.	*Spitfire IX Modified Rudder.* (Inter. Avia., No. 872-873, June 18, 1943, p. 15.)
50	15010	U.S.A. ...	*Magnesium in German Aircraft.* (H. W. Schmidt, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 7-21, 145.)
51	15017	U.S.A. ...	*Instrument Lay-Out in Cockpit of Focke-Wulf 190 (Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 97.)
52	15048	U.S.A. ...	*Rubber Used as the Shock Absorbing Medium in the Compression Struts of Mosquito Undercarriage.* (Automotive Industries, Vol. 89, No. 4, August 15, 1943, p. 29.)
53	15070	G.B.	*A Tailless Messerschmitt Design with New Flap Arrangement (Patent).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 366.)
54	15073	G.B.	*Track Landing Gear.* (G. H. Dowty, Flight, Vol. 44, No. 1,814, Sept. 30, 1943, pp. 368-369.)
55	15089	G.B.	*The Westland Electric Remote Control Unit.* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 373.)
56	15251	U.S.A. ...	*Synthetic Rubber Fuel Storage Tanks.* (Aero Digest, Vol. 43, No. 1, July, 1943, pp. 212, 291.)
57	15265	U.S.A. ...	*Improved Cockpit Shield for Blind Flying Training (Obscures View of Student Pilot without Obscuring the Vision of the Instructor).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 295.)

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58	15270	U.S.A. ...	*Windshield Design for High-Speed Airplanes.* (M. Di Giovanni, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 321-325, 369.)
59	15311	U.S.A. ...	*Lockheed Droppable Steel Fuel Tanks.* (Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 111-112.)
			Special Equipment.
60	14409	U.S.A. ...	*All-Purpose Goggles (Designed for Use with Oxygen-Breathing Masks).* (S. S. Little, Flying, Vol. 33, No. 2, August, 1943, pp. 43, 194.)
61	14423	U.S.A. ...	*Emergency Fishing Kit for Downed Airmen.* (R. Gordon, Flying, Vol. 33, No. 2, August, 1943, pp. 88, 166.)
62	14431	U.S.A. ...	*Midget Heaters for Aircraft Instruments.* (Flying, Vol. 33, No. 2, August, 1943, p. 140.)
63	14981	U.S.A. ...	*Body Armour for Bomber Crews.* (Army Ordnance, Vol. 25, No. 140, September-October, 1943, pp. 371-372).
64	15146	U.S.A. ...	*Glass Kite String Used to Carry Radio Antenna Aloft (for Crash Landings at Sea).* (Scientific American, Vol. 169, No. 3, September, 1943, p. 132.)
65	15157	G.B.	*The Dixon Inflatable Dinghy.* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 56-57.)
66	15278	U.S.A. ...	*New Rescue Spotlight for Crashed Airmen.* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 485.)
67	15312	U.S.A. ...	*Midget Searchlight to Aid Aviators Forced Down at Sea.* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 112.)
			Armament.
68	14354	U.S.A. ...	*Designing Gun Turrets as Integral Part of Aircraft —Part III.* (Aviation, Vol. 42, No. 6, June, 1943, pp. 227-231, 343-346.)
69	14751	G.B.	*Winged Bombs.* (Flight, Vol. 44, No. 1,813, September 23, 1943, pp. 325-326.)
70	14967	U.S.A. ...	*Wings, Bombs and Bullets.* (Gen. H. H. Arnold, Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, pp. 317-320.)
71	14971	U.S.A. ...	*British Armament.* (H. Rowan-Robinson, Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, pp. 331-335.)
72	14976	U.S.A. ...	*Aerial Fire Power (including Photographs of Aircraft Armament).* (Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, pp. 342-348.)
73	15163	G.B.	*Armament and General Tactics Adopted by Flying Fortress Units.* (Aeronautics, Vol. 9, No. 2, Sept., 1943, pp. 66-67.)
74	15253	U.S.A. ...	*Some Details of the Sperry Automatic Gun-Sight Revealed.* (Aero Digest, Vol. 43, No. 1, July, 1943, pp. 217, 281.)

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75	15301	U.S.A. ...	*Bell's Machine Gun Recoil Damping Device Gives Fixed Rigidity to Free Guns.* (Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 30-31.)

Military Types of Aircraft (G.B.).

76	14303	G.B.	*Avro Lancaster (Cut-away Illustration).* (Aviation, Vol. 42, No. 2, February, 1943, p. 155.)
77	14305	G.B.	*British Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 209-219.)
78	14358	G.B.	*New Hawker Typhoon.* (Aviation, Vol. 42, No. 6, June, 1943, pp. 239-241, 355.)
79	14415	G.B.	*Survey of British Aircraft.* (E. C. Shepherd, Flying, Vol. 33, No. 2, August, 1943, pp. 56, 182.)
80	14419	G.B.	*Fairey Fulmar (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 85.)
81	14422	G.B.	*Bristol Beaufighter Carrying Torpedo (Photo).* (Flying, Vol. 33, No. 2, August, 1943, p. 85.)
82	14752	G.B.	*The Taylorcraft Auster III for Artillery Spotting and Communications (Detailed Drawings).* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, pp. 331-335.)
83	14757	G.B.	*Spitfire V.B. (Clipped Wings) (Recognition Details).* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 340.)
84	14760	G.B.	*A Fairey Fulmar Making an Assisted Take-off from Aircraft Carrier (Photo).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 300.)
85	14801	G.B.	*Taylorcraft Austers (Photo).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, pp. 347, 356-357.)
86	14802	G.B.	*Avro Lancaster II with Bristol Hercules Radial Motors (Photograph).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 348.)
87	14803	G.B.	*Hawker Sea Hurricane Fighter Catching an Arrestor Wire on Deck of Carrier (Photo).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 350.)
88	14807	G.B.	*The Miles Martinet I (Recognition Details).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 361.)
89	14813	G.B.	*Hurricane II D and II C (Photos).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 328-329.)
90	14911	G.B.	*Hawker Typhoon I A, B and C.* (Inter. Avia., No. 872-873, June 18, 1943, II, p. 14.)
91	14912	G.B.	*Spitfire Vb Modified for Low Altitude.* (Inter. Avia., No. 872-873, June 18, 1943, p. 14.)
92	14915	G.B.	*Halifax II (Modified Nose).* (Inter. Avia., No. 872-873, June 18, 1943, p. 15.)
93	14923	G.B.	*Sunderland III Reconnaissance Flying Boat.* (Inter. Avia., No. 874, June 30, 1943, p. 15.)
94	15058	G.B.	*Halifax II, Series II (Silhouettes).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 373.)

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95	15064	G.B.	*Taylorcraft Auster III (Photo).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 391.)
96	15154	G.B.	*Typhoons as Dive-Bombers (Photos).* (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 45.)
97	15165	G.B.	*Spitfires and Air-Sea Rescue.* (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 77.)
98	15182	G.B.	*Taylorcraft Auster III (Recognition Details).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 393.)
			Military Types of Aircraft (Canada and Australia).
99	14359	Canada ...	*Noorduyn "Norseman" (Photos).* (Aviation, Vol. 42, No. 6, June, 1943, pp. 241, 349.)
100	14763	Australia ...	*Australia's New Fighter—the Boomerang.* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 309.)
101	14776	Canada ...	*Canadian and British Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 82-92.)
			Military Types of Aircraft (U.S.S.R.).
102	14306	U.S.S.R. ...	*Russian Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 221-227.)
103	14365	Russia ...	*Iliuchin IL-2 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 301.)
104	14366	Russia ...	*Sukhon SU-2 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 301.)
105	14486	U.S.S.R. ...	*Aeroplanes of the Russian Air Forces (Recognition Details).* (Aeroplane Spotter, Vol. 4, No. 92, Sept. 9, 1943, pp. 207-214.)
106	14758	Russia ...	*Lagg-3 (Recognition Details).* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 341.)
107	14780	U.S.S.R. ...	*Russian Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, p. 112.)
108	14906	U.S.S.R. ...	*New Russian First Line Types (Lagg-5, IL-4, Pe-2).* (Inter. Avia., No. 872-873, June 19, 1943, p. 9.)
109	15164	G.B.	*New Soviet Fighter La. 5.* (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 73.)
			Military Types of Aircraft (U.S.A.).
110	14258	U.S.A. ...	*North American A-36 Fighter (New Version of P-51 Mustang).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 62.)
111	14299	U.S.A. ...	*North American P-51 Mustang (Cut-away Drawing).* (Aviation, Vol. 42, No. 2, February, 1943, p. 147.)
112	14304	U.S.A. ...	*American Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 181-207.)
113	14316	U.S.A. ...	*Curtiss-Wright C-76 Caravan.* (Aviation, Vol. 42, No. 2, February, 1943, p. 392.)
114	14317	U.S.A. ...	*Lockheed Constellation.* (Aviation, Vol. 42, No. 2, February, 1943, p. 392.)
115	14322	U.S.A. ...	*Rolls Royce Merlin-Engined Warhawks (Photo).* (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 272.)
116	14325	U.S.A. ...	*Cessna Crane (Recognition Details).* (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 283.)
117	14371	U.S.A. ...	*An Amphibious Douglas C. 47 (DC-3).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 312.)

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118	14379	U.S.A. ...	*Consolidated Vultee Convair Patrol Flying Boat for Anti-Submarine Duty.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 26-27, 140.)
119	14411	U.S.A. ...	*First Analysis of the Thunderbolt.* (Peter Masefield, Flying, Vol. 33, No. 2, August, 1943, pp. 47-48, 188-190.)
120	14417	U.S.A. ...	*North American Mitchell (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 82.)
121	14418	U.S.A. ...	*Lockheed Hudson (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 82.)
122	14678	U.S.A. ...	*The Vought-Sikorsky Kingfisher (Recognition Details).* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 263-264.)
123	14761	U.S.A. ...	*The New Martin Marauder (B. 26C) (Photo).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 303.)
124	14775	U.S.A. ...	*American Military Aircraft (Review).* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 54-80.)
125	14789	U.S.A. ...	*Cessna Aircraft for Training Bomber Pilots.* (E. H. Forbes, Air Services, Vol. 28, No. 7, July, 1943, pp. 37-40, 48.)
126	14806	U.S.A. ...	*The North American Harvard I (Recognition Details).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 361.)
127	14809	U.S.A. ...	*Improved Versions of the Consolidated Liberator and Boeing Fortress.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 319.)
128	14811	U.S.A. ...	*North American A-36 Fighter Dive Bombers (Photo).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 320.)
129	14812	U.S.A. ...	*Gruman Tarpon I Torpedo Bomber (Photo).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 322.)
130	14916	U.S.A. ...	*Republic S-47 Thunderbolt (Exhaust Driven Supercharger).* (Inter. Avia.,No. 872-873, June 18, 1943, II, p. 17.)
131	14917	U.S.A. ...	*Sikorsky XR-4 Helicopter (150 h.p.).* (Inter. Avia., No. 872-873, June 18, 1943, p. 17.)
132	14918	U.S.A. ...	*Curtiss Owl Observation Plane (O-52).* (Inter. Avia., No. 872-873, June 18, 1943, p. 17.)
133	14921	U.S.A. ...	*Lockheed-Vega B-34 Ventura (Twin-Engined Bomber).* (Inter. Avia., No. 874, June 30, 1943, p. 8.)
134	14922	U.S.A. ...	*Bell P-39 Airacobra Fighter.* (Inter. Avia., No. 874, June 30, 1943, p. 9.)
135	14923	U.S.A. ...	*North American A-36 Fighter (Derived from Mustang).* (Inter. Avia., No. 874, June 30, 1943, p. 9.)
136	14968	U.S.A. ...	*Martin B-26 Marauder Bomber (Photo).* (Army Ordnance, Vol. 25, No. 140, September-October, 1943, p. 318.)
137	15015	U.S.A. ...	*An "Exploded" View of the Fairchild AT-21 Gunnery Trainer.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 91.)

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138	15019	U.S.A.	... *New Piper Trainer.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 159-161.)
139	15026	U.S.A.	... *New Fairchild Bomber Crew Trainer—AT.* 14. (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 97.)
140	15034	U.S.A.	... *New Curtiss A-25 Bomber (Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 55.)
141	15060	U.S.A.	... *Grumman Hellcat Single-Seat Fleet Fighters (Photo).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 380.)
142	15075	U.S.A.	... *Piper P.T. Trainer (Recognition Details).* (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 282.)
143	15162	U.S.A.	... *Vought-Sikorsky F. 4U (Photo).* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 70.)
144	15172	U.S.A.	... *Thunderbolt (Photograph).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 383.)
145	15255	U.S.A.	... *The Aeronca L-3B Liaison Aircraft (Design Details).* (Aero Digest, Vol. 43, No. 1, July, 1943, pp. 226-227.)
146	15260	U.S.A.	... *Amphibious Douglas C. 47 "Skytrain" (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 252.)
147	15281	U.S.A.	... *Ryan Plastic-Bonded Plywood Primary Trainers (PT-25) (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 495.)
148	15282	U.S.A.	... *Navy Version of the Consolidated "Liberator" (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 499.)
149	15304	U.S.A.	... *Republic Thunderbolt (Recognition Details).* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 50.)
150	15305	U.S.A.	... *Consolidated Liberator (Recognition Details).* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 50.)
			Military Types of Aircraft (Sweden).
151	14907	Sweden	... *J. 22 Fighter (Steel Frame, Plywood Cover).* (Inter. Avia., No. 872-873, June 18, 1943, p. 10.)
152	14908	Sweden	... *B. 18 Light Bomber (Svenska).* (Inter. Avia., No. 872-873, June 18, 1943, p. 10.)
			Military Types of Aircraft (Germany).
153	13389	Germany	... *Heinkel He. 111 H.S. (Photo).* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 165.)
154	14301	Germany	... *Structural Details of Focke-Wulf 190 A3 (Sketch).* (Aviation, Vol. 42, No. 2, February, 1943, p. 151.)
155	14308	Germany	... *German Military Aircraft (1943).* (Aviation, Vol. 42, No. 2, February, 1943, pp. 231-237.)
156	14323	Germany	... *Review of the Features of Axis Aircraft Types Captured in the North African Campaign (Me. 210 A-1m Focke-Wulf 190, etc.).* (Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 277-280.)
157	14420	Germany	... *Junkers Ju. 52 (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 83.)

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158	14572	Germany ...	*The Weight of German Aircraft* (*F.W.* 190 *A*-3, *Me.* 109 *F*-1/2, *Do.* 217-1). (Engineer, Vol. 176, No. 4,575, Sept. 17, 1943, p. 232.)
159	14657	Germany ...	*Junkers Aircraft in the Eastern Front* (*Photographs*). (Junkers' Journal, Vol. 13, No. 12, Dec., 1942, p. 133.)
160	14659	Germany ...	*Long Distance Reconnaissance Flying Boat Do.* 24 (*Photo*). (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, cover page.)
161	14763	Germany ...	*Messerschmitt Me.* 323 (*Recognition Details*). (Flight, Vol. 44, No. 1,812, 16/9/43, p. a.)
162	14777	Germany ...	*German Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 94-100.)
163	14909	Germany ...	*Heinkel He.* 277 *Long Range Fighting Bomber* (*Jabo*). (Inter. Avia., No. 872-873, June 18, 1943, pp. 11-12.)
164	15061	Germany ...	*Focke-Wulf F.W.* 200*k*2 *Kurier II Four-Motor Patrol Bomber* (*Photo*). (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 381.)
165	15179	Germany ...	*New German Types* (*Me.* 410. *F.W.* 290, *F.W.* 190 *A*3 *and F.W.* 190 *A*4). (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
			Military Types of Aircraft (Japan).
166	14309	Japan ...	*Japanese Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 239-241.)
167	14778	Japan ...	*Japanese Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 100-106.)
168	14905	Japan ...	*New Version of Mitsubishi S-OO Fighter.* (Inter. Avia., No. 872-873, June 18, 1943, pp. 8-9.)
169	15176	Japan ...	*Japanese Aircraft Designation.* (Flight. Vol. 44, No. 1,815, 7/10/43, p. 391.)
170	15180	Japan ...	*New Japanese Aircraft.* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
			Military Types of Aircraft (France).
171	14769	France ...	*The Payen Pa.* 222 (*Wood Constructed Tandem Monoplane*). (Flight, Vol. 44, No. 1,812, 16/9/43, p. 310.)
172	14805	France ...	*New Types of French Multi-Motor Planes.* (Aeroplane, Vol. 65, No. 1,687, 22/9/43, pp. 358-359.)
			Military Types of Aircraft (Italy).
173	14307	Italy	*Italian Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 227-229.)
174	14661	Italy	*New Military Aircraft of the Italian Air Force* (*Photograph*). (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 112-113.)
175	14779	Italy	*Italian Fighting Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 108-110.)
176	14908	Italy Germany ...	*Official Data on Enemy Aircraft* (*Siebel Si.* 204, *Cant Z* 1007 *bis*, *Caproni-Reggiane*, *Junkers* 87*D*, *Fiat R.S.* 14, *Fiat C.R.* 42, *Fiat G.* 50, *Savoia-Marchetti S.M.* 82). (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 317-318.)

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			Troop Transport and Ambulance.
177	14368	G.B. ...	... *Air Sea Rescue Vickers Supermarine Walrus (Photo).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 305.)
178	14762	U.S.A.	... *The Douglas C. 47 as an Amphibious Transport (Photo).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 304.)
179	14804	Germany	... *The Messerschmitt Transport Me. 323 (Detail Drawings).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 354.)
180	14824	U.S.A.	... *A New Douglas Transport, the C-74.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 339.)
181	14925	U.S.A.	... *Grumman G. 21-B Goose (Air-Sea Rescue).* (Inter. Avia., No. 874, June 30, 1943, p. 10.)
182	14927	Canada	... *Norduyn UC-64 Transport.* (Inter. Avia., No. 874, June 30, 1943, pp. 12-13.)
183	15024	U.S.A.	... *Wood Transport Aircraft—Curtiss (C-76) Caravan.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 96.)
184	15059	Germany	... *Junkers Ju. 90B Four-Motor Transport (Photo).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 378.)
185	15239	U.S.A.	... *The Curtiss Commando Transport Aircraft.* (The Bladesman, June, 1943, pp. 15-17.)
186	15298	U.S.A.	... *Air Transport of Casualties from Combat Zones.* (J. Stuart, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 21-23, 126-128.)
			Gliders.
187	14318	U.S.A.	... *Navy's Bristol XLQ-1 Amphibian Glider (Photo).* (Aviation, Vol. 42, No. 2, February, 1943, p. 393.)
188	14380	U.S.A.	... *Mass Assembly Methods Adapted to Army 3-Ton Transport Gliders (CG-4A Maco Glider).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 30-33, 46, 64.)
189	14685	G.B. ...	... *The Horsa Glider, Part I—Production of Fuselage.* (W. E. Goff, Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 464-472.)
190	14764	G.B. ...	... *Gotha Go. 244 Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. b.)
191	14781	U.S.A.	... *American and British Gliders.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, p. 114.)
192	14930	U.S.A.	... *Military Gliding in the U.S.A.* (Inter. Avia., No. 874, June 30, 1943, pp. 16-17.)
193	15066	Germany	... *Gotha Twin-Boom Glider—Go. 242 (Photo).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 357.)
194	15068	U.S.A.	... *Hadrian CG-4A Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 364.)
195	15069	G.B. ...	... *Airspeed Horsa Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 365.)
196	15181	G.B. ...	... *Hotspur Glider (Recognition Details).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 392.)

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197	15280	U.S.A. ...	*Amphibious Transport Glider (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 487.)
			Carriers, Navy Fighters.
198	14421	U.S.A. ...	*Aircraft Carrier Arresting Gear (Photo).* (Flying, Vol. 33, No. 2, August, 1943, p. 85.)
199	14449	U.S.A. ...	*The U.S.Naval Air Arm.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 193.)
200	15014	U.S.A. ...	*The Brewster F3A Navy Fighter.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 51.)
201	15063	G.B.	*The Navy's Fighter Pilots.* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, pp. 386-390.)
202	15090	G.B.	*Escort Carriers (Photographs).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 375.)
			Anti-Aircraft.
203	14402	G.B.	*Aircraft Recognition.* (S. A. Saville-Sneath, Penguin Special, Vol. 1 Revised, 1943, pp. 5-192.)
204	14666	Germany ...	*Overhauling German Anti-Aircraft Gun (Photo).* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 120.)
205	14755	G.B.	*Recognition Schools of A.A. Command.* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 339.)
206	14786	U.S.A. ...	*The Rôle of the Airship in the War at Sea.* (J. B. Goodman, Air Services, Vol. 28, No. 7, July, 1943, pp. 15-16.)
207	14800	G.B.	*Instruction in Aircraft Recognition.* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 346.)
208	15184	G.B.	*Work of the Royal Observer Corps.* (Flight, Vol. 44, No. 1,815, 7/10/43, pp. 396-398.)
209	15240	U.S.A. ...	*Blimps on Patrol.* (R. G. Picinich, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 116-117, 359, 365.)
			Servicing and Maintenance.
210	14249	U.S.A. ...	*Measuring Jig for Checking One Elevator Against Another.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 48.)
211	14251	U.S.A. ...	*Tool for Loosening Aeroplane Tyre from Rim.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 52.)
212	14254	U.S.A. ...	*Servicing American Aircraft in Great Britain (Lockheed-Vega Organisation).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 58.)
213	14302	U.S.A. ...	*Assembly Breakdown of Douglas A-20.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 152-153.)
214	15303	U.S.A. ...	*Army Air Forces Mechanics and Repair Equipment.* (K. Rand, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 43-44, 146.)
215	14436	U.S.A. ...	*American Maintenance Personnel.* (H. Rudolph, Flying, Vol. 33, No. 2, August, 1943, pp. 58-60, 184.)
216	14361	U.S.A. ...	*Fighters and Bombers Fly Home for Repair.* (J. Foster, Aviation, Vol. 42, No. 6, June, 1943, pp. 120-123, 364-375.)

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217	14787	U.S.A. ...	*The Maintenance of America's Expanding Air Force.* (Air Services, Vol. 28, No. 7, July, 1943, pp. 20-22.)
218	14985	U.S.A. ...	*Aircraft Service in Combat Areas.* (G. R. Samborn, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-7.)
219	15007	U.S.A. ...	*Servicing Military Aircraft in Overseas Theatres.* (C. R. Paton and W. C. Could, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-10.)
220	15266	U.S.A. ...	*Design for Service and Maintenance.* (J. R. Frazer and others, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 297-305, 319.)

AERODYNAMICS AND HYDRODYNAMICS (TAIL BUFFETING, SEAPLANE TANK TESTS, Etc.).

221	12715	Germany ...	*Contribution to Profile Theory V (Theory of the Method of Singularities), Theory VI (Theory of the Method of Singularities).* (H. R. Helmbold, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 192-195.)
222	12716	Germany ...	*Second Approximation to the Calculation of the Velocity Distribution by the Method of Singularities.* (F. Keune, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 196-206.)
223	12724	U.S.S.R. ...	*Tail Buffeting.* (G. Abdrashitov, Trans., C.A.W.T., No. 395, Moscow, 1939.) (R.T.P. Translation No. T.M. 1,041.) (N.A.C.A., T.M. 1,041, Feb., 1943.)
224	14614	Germany ...	*Potential Theory Applied to the Scavenging Process of I.C. Engines (Digest).* (F. Schultz-Grunow, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 508-509.)
225	14938	G.B.	*Work in an Experimental Seaplane Tank.* (L. Smith, Journal of the Royal Aeron. Society, Vol. 47, No. 393, Sept., 1943, pp. 290-314.)
226	15006	U.S.A. ...	*Use of Generalised Co-ordinates in Flutter Analysis.* (S. J. Loring, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-33.)
227	15016	U.S.A. ...	*A New 700 m.p.h. Wind Tunnel.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 95.)
228	15222	Italy	*The Influence of Reynolds Number at High Mach Numbers.* (From "Atti di Guidonia," Vol. 1,942, Nos. 67-69, March 10, 1942, pp. 49-92.) (A. Ferri, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 199-200.)

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Civil Aircraft Types.

229	14243	U.S.A. ...	*An Amphibious C-47 Cargo Plane (Photo).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 23.)

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230	14357	U.S.A.	...	*Cessna's New Cargo Plane—Loadmaster.* (Aviation, Vol. 42, No. 6, June, 1943, p. 239.)
231	14408	U.S.A.	...	*The Douglas C-54 "Skymaster" Cargo Transport.* (W. F. Bori, Flying, Vol. 33, No. 2, August, 1943, p. 34.)
232	14774	U.S.A.	...	*American Civil Aircraft (Review).* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 40-53.)
233	14914	G.B.	...	*Heston Racer (Special Tail Radiator).* (Inter. Avia., No. 872-873, June 18, 1943, II, p. 15.)
234	14924	U.S.A.	...	*Cessna "Loadmaster" Transport (Wood).* (Inter. Avia., No. 874, June 30, 1943, p. 10.)
				Civil Aviation and Air Cargo.
235	14242	U.S.A.	...	*Applications with the Civil Aeronautics Board for Airline Routes Covering 350,000 Miles (Complete List).* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 19-20.)
236	14247	U.S.A.	...	*Five-Year Survey of Discomfort Causes Among Aircraft Passengers (United Air Line Study).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 45.)
237	14252	U.S.A.	...	*International Airway Operations.* (E. J. Foley, American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 56, 64.)
238	14255	U.S.A.	...	*Truman Committee's Aviation Report.* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 16, 66-67, 70.)
239	14297	U.S.A.	...	*Transportation in the Post-War Period.* (A. N. Kemp, Aviation, Vol. 42, No. 2, February, 1943, pp. 118, 417-422.)
240	14298	U.S.A.	...	*Some Air Transport Statistics of Particular Interest.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 120-121.)
241	14313	U.S.A.	...	*Directory of United States Airlines.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 271-272.)
242	14348	U.S.A.	...	*America's Domestic Airlines (C.A.A. Survey).* (Aviation, Vol. 42, No. 6, June, 1943, pp. 211, 356.)
243	14350	U.S.A.	...	*Controlled Maintenance as Practised by United Air Lines.* (Aviation, Vol. 42, No. 6, June, 1943, pp. 216, 346-349.)
244	14360	U.S.A.	...	*Air Transport Exclusively Used for Completing Canadian Water-Power Project.* (D. Baker, Aviation, Vol. 42, No. 6, June, 1943, pp. 114-117, 335-337.)
245	14407	U.S.A.	...	*Civil Air Patrol's Courier Air Service.* (G. R. Reiss, Flying, Vol. 33, No. 2, August, 1943, pp. 33, 116-120.)
246	14527	U.S.A.	...	*Terminal Handling of Air Cargo.* (K. O. Larson, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 285-288, 304.)
247	14543	Germany	...	*Air Traffic in a European High-Speed Transport System.* (C. Pirath, Flughafen, Vol. 11, No. 4, May, 1943, pp. 1-4.)
248	14956	U.S.A.	...	*The Air Transport Market in Latin America.* (J. P. Van Zandt, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 649-652.)

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249	15032	U.S.A. ...	*Air Cargo To-day and its Influences in the Post-War World.* (L. Welch Pogue, Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, pp. 31-39.)
250	15252	U.S.A. ...	*The Future of Aviation.* (R. S. Damon, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 214, 247, 285.)

General Aircraft Design.

251	14468	G.B.	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,052, September 10, 1943, pp. 216-217.)
252	14528	U.S.A. ...	*New Windshield Developments.* (A. L. Norse, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 289-293, 304.)
253	14662	Germany ...	*On Aircraft Shell Structures.* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 114-115.)
254	14926	U.S.A. ...	*Flying Wing Cages Aircraft Project (Kaiser).* (Inter. Avia., No. 874, June 30, 1943, pp. 11-12.)
255	14929	G.B.	*Saunders-Roe Giant Flying Boat Project.* (Inter. Avia., No. 874, June 30, 1943, p. 13.)
256	14987	U.S.A. ...	*Experience with the Use of Magnesium in Aircraft.* (J. C. Mathes, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-11.)
257	15023	Switzerland ...	*Assymmetric Airplanes.* (H. Belart, Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, pp. 23-24.)
258	15040	U.S.A. ...	*Windshield Improvements.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 125.)
259	15264	U.S.A. ...	*The Significance of Weight Control.* (J. E. Ayers, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 287-291.)

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260	14230	U.S.A. ...	*High Altitude Test Chamber.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, July 25, 1943, p. 1224.)
261	14333	U.S.A. ...	*Flight Testing at Boeing Aircraft Co.—Part III. High Altitude Test Flying.* (E. T. Allen, Aviation, Vol. 42, No. 6, June, 1943, pp. 147-149, 350-355.)
262	14910	France ...	*Flight Tests of SE. 200 and Lat. 631 Giant Flying Boats.* (Inter. Avia., No. 872-873, June 18, 1943, p. 13.)
263	15012	U.S.A. ...	*Pressurising Low-Altitude Airplanes.* (C. W. Morris, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 29-33.)
264	15047	U.S.A. ...	*Operating Principles of the Vultee Radio-Type Flight-Test Apparatus.* (H. D. Giffin, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 24-28.)

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			Performance, Stability, etc.
265	14518	G.B. ...	... *Resistance to Speed Factors which Affect High Performance.* (F. W. Roberts, Motor Sport, Vol. 19, No. 9, September, 1943, pp. 186-187.)
266	14679	G.B. ...	... *The Lateral Stability of Aeroplanes—A New Geometrical System of Analysis.* (H. L. Price, Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 265-269.)
267	15152	G.B. ...	... *A Simple C.G. Determinator.* (R. G. Worcester, Aeronautics, Vol. 9, No. 2, September, 1943, p. 37.)
268	15183	G.B. ...	... *Power/ Speed and Weight (Cross Weight Accurately Determined from the Power/Speed Ratio).* (W. Nichols, Flight, Vol. 44, No. 1,815, 7/10/43, pp. 394-395.)
			Airscrews and Helicopters.
269	14255	U.S.A.	... *Twin-Rotor Helicopter Designed by Landgraf (Photo).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 61.)
270	14326	G.B. ...	... *Reversible Pitch Airscrews (Their Effectiveness as Air Brakes, Landing Brakes and Dive Brakes).* (J. Mullin, Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 283, 284-285.)
271	14351	U.S.A.	... *Propeller Dolly.* (Aviation, Vol. 42, No. 6, June, 1943, p. 219.)
272	14438	U.S.A.	... *Problems of Routine Propeller Balancing.* (J. T. Farrah, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 209-212.)
273	14765	G.B. ...	... *A Review of the Present Position and Future Outlook of the Constant-Speed Airscrews.* (L. G. Fairhurst, Flight, Vol. 44, No. 1,812, 16/9/43, pp. 311-314.)
274	15008	U.S.A.	... *Analysis of Captured Composite Propeller Blade.* (W. L. Greene and A. R. Crocker, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-7, Figs. 3-5.)
275	15029	U.S.A.	... *Dual Rotation Propeller.* (Journal of Aeronautical Science (Review Section), Vol. 2, So. 1, January, 1943, p. 99.)
276	15103	U.S.A.	... *Current Trends in Propeller Design.* (T. P. Lambeck, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 18-20, 23.)
			Patents and Devices.
277	14272	G.B. ...	... *Compound for Cleaning the "Organic" Glass Nose Sections of Modern Aircraft.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 389-390.)
278	14338	U.S.A.	... *High Output Generating Systems for Aircraft.* (W. F. Fell, Aviation, Vol. 42, No. 6, June, 1943, pp. 167-170, 330-331.)
279	14346	U.S.A.	... *New Device for Night Landings (American Patent).* (Aviation, Vol. 42, No. 6, June, 1943, p. 198.)

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280	14387	U.S.A. ...	*New Aeroplane Leaf Spring Landing Gear.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 56.)
281	14429	U.S.A. ...	*A New Method of Treating Carbon Brushes for Aircraft Generators so as to Offset High Altitude Effects.* (Flying, Vol. 35, No. 2, August, 1943, pp. 140, 144.)
282	15013	U.S.A. ...	*The Horse-power Meter for Aircraft.* (J. C. Luttrell and W. A. Petrasek, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 35-39.)
			Airports.
283	14246	U.S.A. ...	*Construction of Idlewild Airport (Designed to be the World's Largest Airport) (Photograph).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 41.)
284	14385	U.S.A. ...	*Compound Controls Airport Dust.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 45.)
285	14405	U.S.A. ...	*Airports at Sea.* (E. R. Armstrong, Flying, Vol. 33, No. 2, August, 1943, pp. 27-29, 176-180.)
286	14545	Germany ...	*Structural Features of Aerodrome Runway Foundations (Methods of Surfacing and Use of Available Materials).* (Wittig, Flughafen, Vol. 11, No. 4, May, 1943, pp. 8-9.)
287	14546	Germany ...	*Soviet Instructions for the Maintenance of Aerodromes in Winter.* (Flughafen, Vol. 11, No. 4, May, 1943, p. 10.)
288	14547	Germany ...	*The Significance of Soil Conditions for Aerodrome Installations in the Light of New Scientific Research (Concluded).* (Von George Kaven, Flughafen, Vol. 11, No. 4, May, 1943, pp. 11-15.)
289	14629	Germany ...	*The Use of Aircraft for Attack on Agricultural Pests.* (Flughafen, Vol. 2, No. 2, Feb., 1943, pp. 8-13.)
290	14631	Germany ...	*Construction and Design of Runways on American Aerodromes.* (C. Gerlach, Flughafen, Vol. 2, No. 2, Feb., 1943, pp. 1-4.)
291	14632	Germany ...	*Principles and Standards for Swiss Aerodrome Construction and Design—II.* (Flughafen, Vol. 2, No. 3, March, 1943, pp. 1-7.)
292	14633	Germany ...	*The Significance of Soil Conditions for Aerodrome Installations in the Light of New Scientific Research.* (G. Kaven, Flughafen, Vol. 2, No. 3, March, 1943, pp. 9-11.)
293	14634	Germany ...	*Drem System of Lights for Night Landing.* (Flughafen, Vol. 2, No. 3, March, 1943, pp. 12-13.)
294	14635	Germany ...	*Ground Organisation for Civil Transport (Planning Post-War Aerodromes in France).* (Flughafen, Vol. 2, No. 3, March, 1943, p. 14.)
295	14753	G.B.	*Manchester's Ringway Airport Plans.* (Flight, Vol. 44, No. 1,813, September 23, 1943, p. 335.)
296	15306	U.S.A. ...	*Airport Hazards.* (B. Kelly, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 51-53, 118-123.)

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			Training in Aeronautics.
297	14404	U.S.A. ...	*Special Devices for Training Aviation Students.* (S. Johnson, Flying, Vol. 33, No. 2, August, 1943, pp. 24-26, 168-172.)
298	14406	U.S.A. ...	*Britain's Women Flyers in the A.T.A. (Air Transport Auxiliary Service).* (P. Gower, Flying, Vol. 33, No. 2, August, 1943, pp. 30-32, 98.)
299	14571	G.B.	*Civil Flying.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 226.)
300	15149	G.B.	*Specialised Training in Aeronautics.* (O. Stewart, Aeronautics, Vol. 9, No. 2, September, 1943, p. 27.)
			ENGINES AND ACCESSORIES.
			Named Types.
301	14300	Germany ...	*Main Bearing Supports of Mercedes-Benz D.B. 601A Engine (Sketch).* (Aviation, Vol. 42, No. 2, February, 1943, p. 149.)
302	14310	U.S.A. ...	*Representative American Aircraft Engines for* 1943. (Aviation, Vol. 42, No. 2, February, 1943, pp. 243-246.)
303	14311	U.S.A. ...	*Specification Tables of American, Allied and Enemy Aircraft, Engines and Components.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 255-262.)
304	14782	U.S.A. ...	*American Aircraft Engines.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 116-120.)
305	14783	U.S.A. ...	*British Aircraft Engines.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 120-122.)
306	14919	U.S.A. ...	*Lycoming GO-435 Air-Cooled Flat 6 (200 h.p.).* (Inter. Avia., No. 872-873, June 18, 1943, pp. 17-18.)
307	15035	U.S.A. ...	*The New Lycoming GO-435 Six-Cylinder Horizontally Opposed 210 h.p. Engine (Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 61.)
308	15052	U.S.A. ...	*Ford 500 h.p. Liquid-Cooled Tank Engine (Photo).* (Automotive Industries, Vol. 89, No. 4, August 15, 1943, p. 48.)
309	15071	France ...	*A New French Engine—Bearn 6D.* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 366.)
310	15175	Germany ...	*The Argus A.S. 410 12-Cylinder Engine (Photo).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
311	15213	Sweden ...	*New Swedish 2,500 h.p. Aero Engine,* (F. Mannerstedt, Flying, No. 18, 1943.)
			Special Types.
312	14211	G.B.	*Wartime Use of Electric Motors.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 235-237.)
313	14383	U.S.A. ...	*Chrysler Diesel Engines (M-12 Diesel Marine Engine and Ind-3 Industrial Diesel Engine).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 42, 138.)

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314	14445	G.B.	*The Economic Limitations of the Coal-Dust Engine.* (From "Die Warme," Vol. 65, 1942, pp. 159-165.) (Engineering, Vol. 156, No. 4,051, September 3, 1943, pp. 183-185.)
			General Design and Installation.
315	14344	U.S.A. ...	*Engine Installation of Inboard Nacelle on the Boeing Flying Fortress (Sketch).* (Aviation, Vol. 42, No. 6, June, 1943, p. 191.)
316	14532	U.S.A. ...	*Probable Trend of Post-War Aircraft Power Plant Installation Design (Two-Engined Family Plane) (Abstract).* (F. M. Bondor, S.A.E. Journal, Vol. 51, No. 8, August, 1943, p. 32.)
317	14599	Germany ...	*Modern Developments in Piston Designs.* (E. Mahle, A.T.Z., Vol. 45, No. 21, November 10, 1942, pp. 569-579.)
318	14626	U.S.A. ...	*Bullet Proof Fuel and Oil Lines (Self-Sealing) (U.S.A.).* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 553.)
319	14675	Germany ...	*Three German Engine Fuel Systems (B.M.W. 132 K and 132 N, Bramo Fafnir 323 P-1, and B.M.W. 801).* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 248-253.)
320	14900	Switzerland ...	*The Design of Large Centrifuges (in Diameter 6,000 r.p.m.).* (P. Suter, Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 38-40.)
			Pumps, Turbines, Superchargers.
321	14268	G.B.	*Pumps for Very Hot Liquids.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 411-412.)
322	14525	U.S.A. ...	*The Effect of Injection Pumps on Cold Starting.* (M. M. Roensch, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 277-279.)
323	14620	Germany ...	*Scintilla Injection Pump and Nozzle.* (A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 559-561.)
324	14759	G.B.	*Development of Aircraft Supercharger.* (R. P. Gordon Jones, Flight, Vol. 44, No. 1,813, September 23, 1943, pp. 342-347.)
325	15158	G.B.	*Blackburn Supercharger Patent.* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 58.)
326	13218	G.B.	*Hydraulic Turbine Practice of the T.V.A.* (H. J. Petersen and J. F. Roberts, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 193-194.)
327	15219	G.B.	*Practical Turbine Lubrication.* (S. R. O'Dette, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 194-196.)
			Accessories (Carburettors, Synchronizers, etc.).
328	13265	U.S.A. ...	*Gaskets Made of Copper Mesh.* (Automotive Industries, Vol. 89, No. 1, 1/7/43, p. 43.)
329	14250	U.S.A. ...	*Rubber-Coated Copper Mesh for Gaskets.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 51.)
330	14295	G.B.	*Pneumatic Journal Bearing (Patent).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 383.)

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331	14370	G.B.	*M.A.P. Exhibition of Aero Engine Accessories.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 311.)
332	14388	U.S.A. ...	*Automatic Engine Speed Synchronizer.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 72.)
333	14519	G.B.	*Sparking Plug Research.* (Motor Sport, Vol. 19, No. 9, September, 1943, p. 197.)
334	14529	U.S.A. ...	*Carburation for the Aircraft Engine.* (F. J. Wiegand, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 294-303.)
335	14588	Germany ...	*A New Solex Carburettor.* (A.T.Z., Vol. 45, No. 19, 10/10/42.)
336	14628	U.S.A. ...	*Spark Plug Insulator (U.S.A.).* (A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 558-559.)
337	14790	U.S.A. ...	*The Curtiss Automatic Engine Speed Synchronizer.* (Air Services, Vol. 28, No. 7, July, 1943, p. 42.)
338	14793	G.B.	*Silver-Plated Bearings for I.C. Engines (Patent).* (Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, p. 201.)
339	14951	U.S.A. ...	*Cylinder and Ring Life with Porous Chromium Plated Rings.* (T. C. Jarrett, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 633-635.)
340	15108	U.S.A. ...	*The Possibilities of Shaved Gears for Aircraft Engines.* (A. W. Harris, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 329-335, 344.)
341	15109	U.S.A. ...	*Intake Systems for Aircraft Engines.* (C. T. Doman, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 334-343.)
342	15249	U.S.A. ...	*Automatic Synchronizer Controls Engine Speed.* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 207.)
			Performance and Operation.
343	14236	U.S.A. ...	*Centrifugal Pump Performance as a Function of Specific Speed.* (A. J. Stepanoff, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 629-647.)
344	14467	G.B.	*Flexible Shaft Couplings.* (W. A. Tuplin, Engineering, Vol. 156, No. 4,032, September 10, 1943, p. 214.)
345	14524	U.S.A. ...	*Wartime Replacement Parts (including Engine Trouble Chart).* (R. Cass, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 269-276, 279.)
346	14526	U.S.A. ...	*Cranking Power and Torque Requirements for Starting Diesel Engines at Sub-Zero Temperatures.* (H. L. Knudsen, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 280-284.)
347	14537	U.S.A. ...	*Development and Standardisation of Approved Methods for the Preservation of Engines and Spare Parts Against Corrosion.* (A. Ayers, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 49-50.)

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348	14794	G.B.	*Corrosion of Magnesium (from Contact with Carburettor De-Icing Fluids).* (Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, p. 201.)
349	14836	G.B.	*Eliminating Erosion in Continuously Operating Turbines.* (Mechanical World, Vol. 114, No. 2,958, September 10, 1943, p. 304.)
350	15022	U.S.A. ...	*Cyclone Combustion—A New 16 mm. Instructional Sound Motion Picture.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, pp. 11-15.)
			Thermodynamics.
351	14239	U.S.A. ...	*Rating Supercharged Engines on the Basis of the Mean Temperature of the Cycle (with Discussion).* (R. Miller, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 685-696.)
352	14240	U.S.A. ...	*Inlet-Air-Temperature Correction in a Roots Supercharger (with Discussion).* (F. A. Hiersch, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 697-700.)
353	14831	G.B.	*Quick Starting of Steam Turbines—Heating Effects Accompanying High Pressure Operation.* (Mechanical World, Vol. 114, No. 2,958, Sept. 10, 1943, pp. 286-287.)
			Testing.
354	14339	U.S.A. ...	*Adjustable Orifices for Aircraft Engine Testing.* (J. P. Green, Aviation, Vol. 42, No. 6, June, 1943, pp. 175-176.)
355	14352	U.S.A. ...	*Braniff Assembly Stand for Engine Rear Sections.* (Aviation, Vol. 42, No. 6, June, 1943, p. 219.)
356	14585	Germany ...	*Formulæ for the Contact Pressure in Straight Teeth Spur Gears.* (H. Glanbitz, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 515-523.)
357	14591	Germany ...	*Test of Replacement Material for Gear Wheels.* (M. Ulrich, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 595-600.)
358	14676	G.B.	*Regeneration of Test Bed Power,* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 254-256, 269-270.)
359	14725	G.B.	*A Method of Measuring Amplitudes of Vibration of Rotating Shafts.* (J. A. Mitchell, J. Scientific Inst., Vol. 20, No. 8, August, 1943, p. 134.)
360	15166	Germany ...	*Development and Results of Comparative Fuel Tests Carried Out at the Ludwigshafen-Oppar with C.F.R. and I.C. Test Engines.* (E. Singer, Ol. and Kohle., Vol. 37, No. 40, October 22, 1941, pp. 795-799.)
361	15250	U.S.A. ...	*Motor Fuel Supply System for Engine Test Rooms.* (A. F. Holler, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 209-210, 281.)
			FUELS AND LUBRICANTS.
			Liquid Fuels.
362	14288	G.B.	*Post-War Petrol.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 365.)

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363	14534	U.S.A. ...	*Fuels and Lubricant Specifications for U.S. Army Ground Forces.* (G. A. Round, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 33-36.)
364	14549	Germany ...	*German Standardisation of Generator Fuels.* (Flughafen, Vol. 11, No. 4, May, 1943, p. 18.)
365	14844	U.S.A. ...	*Portable Pipeline Carrying Gasoline and Water to Battle Fronts.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 6-7.)
366	14845	U.S.A. ...	*Where We Stand on Aviation Gasoline.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 18-20.)
367	15110	U.S.A. ...	*Fuel Requirements for Tanks.* (Journal of the S.A.E., Vol. 51, No. 9, September, 1943, p. 344.)
			Gaseous Fuels.
368	14215	G.B.	*Alternative Fuels for Internal Combustion Engines.* (W. J. Walker, Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 246-249.)
369	14283	G.B.	*Alternative Fuels. Part II—Producer Gas (Survey of Methods Adopted in Switzerland).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 343-348.)
370	14292	G.B.	*Air-Gas Mixing Valves for Producer Gas Plants.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 377-379.)
371	14382	U.S.A. ...	*Producer Gas for Motor Transport—Part I.* (E. A. Allcut, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 38-41.)
372	14485	G.B.	*Use of Gaseous Fuels for I.C. Engines (including the Erren Cycle).* (W. J. Walker, Mechanical World, Vol. 114, No. 2,957, September 3, 1943, pp. 277-280.)
373	14883	U.S.A. ...	*Volumetric Behaviour of Methane.* (R. H. Olds and others, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 922-924.)
374	15051	U.S.A. ...	*Producer Gas for Motor Transport—Part II.* (E. A. Allcut, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 38-44, 60.)
375	15129	U.S.A. ...	*Valuable By-Products from Sewage Treatment Processes (Fertilizer, Gas, Grease, etc.).* (E. J. Cleary, Scientific American, Vol. 169, No. 3, September, 1943, p. 106.)
376	15197	G.B.	*Producer Gas and Alternative Gaseous Fuels for Road Vehicles. (Collection of Abstracts continued from Report No. 9,163 B.)* (Institution of Automobile Engineers, No. 1,943/12, 1943, pp. 1-23.)
			Oils and Lubricants.
377	14329	G.B.	*Effects of Oxidation, Acidity and Carbonisation upon the Quality of Insulating Oil.* (C. H. Pike, Electrical Review, Vol. 133, No. 3,428, August 6, 1943, pp. 171-173.)

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378	14509	G.B.	*The Influence of Temperature on Boundary Lubrication.* (J. J. Frewing, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, pp. 23-42.)
379	14595	Germany ...	*Compounded Lubricating Oil.* (E. Thurn, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 612-613.)
380	14611	Germany ...	*Changes in the Lubricating Oil of Engine Operated with Suction Gas Generators.* (E. Thurn, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 496-501.)
381	14621	Germany ...	*Lubricating Oil from Whale Oil.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 547.)
382	14648	G.B.	*The Lubrication of Mechanisms and Automatic Devices.* (Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 167.)
383	14771	G.B.	*Oil Cleaning—Survey of Available Information. Section I—Oil Contamination by Extraneous Impurities.* (L. Rosenfeld, Institute of Automobile Engs., July, 1943, pp. 3-11.)
384	14879	U.S.A. ...	*Deterioration of Lubricating Oils.* (J. J. Jacobs and D. F. Othmer, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 883-889.)
385	14884	U.S.A. ...	*Mineral Insulating Oils—Effect of Additives on Electrical and Chemical Stability.* (A. G. Assaf and J. C. Balsbough, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 909-916.)
386	15233	G.B.	*British Army Design New Oil Supply Systems (German Containers Adapted for British Requirements).* (Petroleum Times, Vol. 47, No. 1,204, 18/9/43, pp. 488-489, 504.)
			High Octane Fuels.
387	14843	U.S.A. ...	*U.S. Production of High Octane Fuel.* (National Petroleum News, Vol. 35, No. 30, July 28, 1943, p. 15.)
388	14858	U.S.A. ...	*Concept of Catalytic Chemistry.* (A. V. Grosse, Industrial and Engineering Chemistry (Industrial Edition), Vol. 35, No. 7, July, 1943, pp. 762-767.)
389	14859	U.S.A. ...	*Fluid Catalyst Process. Catalytic Cracking of Petroleum.* (E. V. Murphree and others, Industrial and Engineering Chemistry (Industrial Edition), Vol. 35, No. 7, July, 1943, pp. 768-773.)
390	15168	Germany ...	*The Knock Rating of High Octane Fuels.* (W. Witschakowski, Ol. and Kohle, Vol. 37, No. 40, October 22, 1941, pp. 801-804.)
			Oil and Fuel Testing.
391	14291	G.B.	*Crankcase Oil Dilution as a Cause of Cylinder and Bearing Wear.* (E. V. Paterson, The Automobile Engineer, Vol. 33, No. 446, September, 1943, pp. 373-374.)

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392	14471	Germany ...	*Rapid Chemical Method for Determining the Head Content of Doped Fuel (15 Minute).* (O. Widmaier, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 181-183.)
393	14586	Germany ...	*Determination of the Metal Content of Used Lubricating Oils (Spectroscopic).* (H. Graff and L. Nenninger, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 523-525.)
394	14605	Germany ...	*Nomograph for Determination of Specific Fuel Consumption on the Test Bench (Design Chart 64).* (W. Kiene, A.T.Z., Vol. 45, No. 17, November 10, 1942, p. 470b.)
395	14615	Germany ...	*Errata to Mixture Scavenging, p.* 418, 420. (A.T.Z., Vol. 45, No. 18, November 25, 1942, p. 509.)
396	15167	Germany ...	*The Knock Rating of Fuel Mixtures (Estimation of Components).* (F. Jantsch, Ol. and Kohle., Vol. 37, No. 40, October 22, 1941, pp. 799-801.)
397	15170	Germany ...	*Requirements for Reference Fuels.* (O. Widmaier, Ol. and Kohle, Vol. 37, No. 40, October 22, 1941, pp. 806-808.)
398	15171	Germany ...	*Determination of Knock Intensity.* (E. Schuch, Ol. and Kohle., Vol. 37, No. 40, October, 1941, pp. 808-810.)
399	15208	G.B.	*Calibration of C.F.R. Reference Fuels. Report of Sub-Committee No. 5—Engine Tests.* (Journal of Institute of Petroleum, Vol. 29, No. 236, August, 1943, pp. 235-236.)

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400	14170	G.B.	*Welding Contraction and "Locked-up" Stresses.* (Metal Progress, Vol. 44, No. 2, August, 1943, pp. 249-251.)
401	14172	U.S.A. ...	*The Useful Data to be Derived from Fatigue Tests.* (J. O. Almen, Metal Progress, Vol. 44, No. 2, August, 1943, pp. 254-261.)
402	14440	U.S.A. ...	*Buckling of Aluminium-Alloy Columns and Plates.* (H. L. Langhaar, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 218-222.)
403	14443	U.S.A. ...	*Space Limitation and Optimum Spring Design (Revision).* (R. H. Carter, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, p. 208.)
404	14450	G.B.	*Working Stresses in Aluminium-Alloy Structures.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 195.)
405	14470	Germany ...	*Strength Characteristic of Electric Arc Welded Steel Plates.* (H. Cornelius and F. Bollenrath, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 175-180.)
406	14476	G.B.	*Infinitesimal Bending of a Surface.* (L. Silberstein, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 549-554.)

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407	14478	G.B.	*Stress at Elevated Temperatures.* (J. W. Strawson, Mechanical World, Vol. 114, No. 2,957, Sept. 3, 1943, pp. 257-258, 267.)
408	14490	G.B.	*Vibration Testing.* (Electrician, Vol. 131, No. 3,404, August 27, 1943, pp. 203-205.)
409	14512	G.B.	*A Stress-Strain Curve for the Atomic Lattice of Mild Steel in Compression.* (S. L. Smith and W. A. Wood, Proceedings of the Royal Society, Vol. 181, No. 984, Sept. 24, 1942, pp. 72-83.)
410	14594	Germany ...	*The Effect of Pre-Tension on the Fatigue Strength of Screwed Joints.* (Thum and Lorenz, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 610-612.)
411	14616	Germany ...	*Errata to "Torsional Oscillations," p. 408.* (A.T.Z., Vol. 45, No. 18, September 25, 1942, p. 509.)
412	14677	G.B.	*Centrifugal Stresses in Impellers (Application of the Three-Dimensional Photo-Elasticity to the Impeller).* (J. L. Meriam, Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 257-263.)
413	14894	G.B.	*Screw Threading and Fatigue Strength.* (Machinery, Vol. 63, No. 1,614, September 16, 1943, p. 316.)
414	14901	Switzerland ...	*Stress Peaks in Cold Worked Riveted Plates.* (M. Koering, Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 41-46.)
415	14903	Switzerland ...	*The Stressing of Rings. Worked Out Examples for Certain Types of Concentrated Loads.* (B. Kummer, Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 48-50.)
416	14984	U.S.A. ...	*Photo-Elastic Separation of Principal Stresses by Oblique Incidence.* (D. C. Drucker, A.S.M.E. Preprint, June 25-26, 1943, pp. 1-5.)
417	15021	U.S.A. ...	*Moment Distribution Factors for Tapered Beams.* (H. B. Alvord and V. C. Trimarchi, Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, pp. 7-9.)
418	15196	G.B.	*Rotation of Rectangular Springs.* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, p. 373.)

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A. Properties.

Al. and Mg. Alloys.

422	13883	G.B.	*Light Metals and Prefabrication of Buildings.* (Light Metals, Vol. 6, No. 67, August, 1943, pp. 381-395.)
423	13885	G.B.	*Magnesium Hygiene.* (Light, Metals, Vol. 6, No. 67, August, 1943, p. 397.)
424	13927	G.B.	*Aluminium in Post-War Reconstruction.* (R. Hammond, Engineer, Vol. 176, No. 4,568, 30/7/43, pp. 94-96.)

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425	14062	G.B.	*Stress Corrosion of Aluminium Magnesium Alloys.* (Metal Industry, Vol. 63, No. 5, 30/7/43, p. 68.)
426	14074	Switzerland ...	*Aluminium in Electrical Engineering.* (From Brown Boveri Review, Vol. 29, April, 1942, No. 4, pp. 89-95.) (F. Streiff, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 175-180.)
427	14190	U.S.A. ...	*Hardness of Aluminium Sheet (Tests and Conversion Charts).* (R. L. Templin, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 86-88.)
428	14224	U.S.A. ...	*Research Laboratory of the Aluminium Co. of America.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, July 25, 1943, pp. 1172-1173.)
429	14229	U.S.A. ...	*Magnesite and Magnesium Compounds Production in the U.S.A.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, July 25, 1943, p. 1220.)
430	14274	G.B.	*Self-Ignition Temperatures for Magnesium.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
431	14335	U.S.A. ...	*Effect of Scratches on Fatigue Strength of Alclad Sheet.* (H. J. Andrews and G. W. Stickley, Aviation, Vol. 42, No. 6, June, 1943, pp. 154-157.)
432	14392	G.B.	*Magnesium from Dolomite.* (Metal Industry, Vol. 63, No. 11, September 10, 1943, p. 163.)
433	14531	U.S.A. ...	*Aluminium in Post-War Cars (Abstract).* (F. Jardine, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 32, 36.)
434	14697	G.B.	*Oxidation Inhibition of Molten Magnesium.* (Light Metals, Vol. 6, No. 68, September, 1943, pp. 418-420.)
435	14698	Germany ...	*Effect of Water on Aluminium Plant (Review of German Work).* (Light Metals, Vol. 6, No. 68, September, 1943, pp. 420-424.)
436	14699	G.B.	*Aluminium and Magnesium in the Electrical Industries.* (B. J. Brajnikoff, Light Metals, Vol. 6, No. 68, September, 1943, pp 425-433.)
437	14700	G.B.	*Light Metals and Prefabrication of Buildings.* (Light Metals, Vol. 6, No. 68, September, 1943, pp. 434-444.)
438	14704	G.B.	*New High Vacuum Technology for the Production of Metallic Magnesium.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 446.)
439	14706	Germany ...	*Aluminium/Sodium—Sulphate Reaction.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
440	14707	G.B.	*The Travers' Process for Preparing Al. Surfaces for adhesion of Electro-Deposits.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
441	14709	Germany ...	*Anodizing Magnesium Alloys.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)
442	14710	Russia ...	*Casting Properties of Al.-Si. and Al.-Cu. Alloys.* (Light Metals, Vol. 6, No. 68, September, 1943. p. 452.)

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443	14712	G.B.	*Extinguishing Magnesium Fires.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)
444	14772	G.B.	*The Constitution of Alloys of Aluminium with Manganese, Silicon, and Iron. III. The Ternary System: Aluminium - Silicon - Iron. IV. The Quaternary System: Aluminium - Manganese - Silicon-Iron.* (H. W. I. Philips and P. C. Varley, Institute of Metals, Vol. 69, No. 8, August, 1943, pp. 317-350.)
445	14795	G.B.	*Magnesium Oxide from Sea Water (Patent).* (Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, p. 201.)
			Iron and Steel.
446	14061	G.B.	*The Forming of Sheet Metal (Cecostamp).* (Metal Industry, Vol. 63, No. 5, 30/7/43, pp. 66-68.)
447	14185	U.S.A. ...	*Rating the Machinability of Bullet Core Steel.* (N. G. Meagley, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 67-71.)
448	14198	U.S.A. ...	16-2 *Stainless Steel.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 99-103.)
449	14294	G.B.	*Alternative Steels—Some Recent American Developments for Aircraft Engines.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 380-381.)
450	14399	G.B.	*Some Tensile Shock Properties of Carbon Steel.* (F. V. Warnock, Engineer, Vol. 176, No. 4,574, September 10, 1943, pp. 206-207.)
451	14499	G.B.	*A Magnetic Study of the Two-Phase Iron-Nickel Alloys—II.* (K. Hoselitz and W. Sucksmith, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 303-313.)
452	14522	U.S.A. ...	*W.E.B. Iron and Steel Committee Accelerates Comparative Tests on N.E. 9,400 Series Steel.* (S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 20-21, 37-38.)
453	14574	G.B.	*Some Tensile Shock Properties of Carbon Steel.* (P. V. Warnock and J. B. Brennen, Engineer, Vol. 176, No. 4,575, September 17, 1943, pp. 233-234.)
454	14623	U.S.A. ...	*Anchoring Steel Studs in Aluminium with the Help of Bronze Wire Inserts (U.S.A.).* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 547.)
455	14703	Germany ...	*Sintered Fe.-Ni.-Al. Magnets.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 445.)
			Non-Ferrous Metals.
456	13864	U.S.A. ...	*The Chemistry of Indium.* (Ind. Engg. and Chemistry, Vol. 15, No. 4, 15/4/43, pp. 270-272.)
457	13945	G.B.	*Antimony and Tungsten Position of Supplies.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 10.)

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458	14064	G.B.	*Beryllium—its Sources and Uses.* (Metal Industry, Vol. 63, No. 5, 30/7/43, pp. 71-72.)
459	14067	G.B.	*Copper Antimony Nickel Gear Alloy Castings (Contd.).* (Various Authors, Metal Industry, Vol. 63, No. 5, 30/7/43, pp. 74-76.)
460	14169	U.S.A. ...	*Cartridge Brass.* (L. E. Gibbs, Metal Progress, Vol. 44, No. 2, August, 1943, pp. 243-248, 292.)
461	14177	U.S.A. ...	*Pre-treatment of Copper-lead Bearing to Facilitate East of "Running-in."* (Metal Progress, Vol. 44, No. 2, August, 1943, pp. 274-275.)
462	14278	G.B.	*The Structure of Electro-Deposited Chromium.* (W. Hume Rothery and M. R. J. Wyllie, Proceedings of The Royal Society, Vol. 181, No. 987, July 26, 1943, pp. 331-344.)
463	14391	G.B.	*Wire and Strip.* (H. C. Williams, Metal Industry, Vol. 63, No. 11, 10/9/43, pp. 165-168.)
464	14394	G.B.	*Tin Conservation in Canada.* (Metal Industry, Vol. 63, No. 11, 10/9/43, p. 169.)
465	14395	G.B.	*The Effect of Certain Elements on the Properties of High Purity Copper.* (J. S. Smart and A. A. Smith, Metal Industry, Vol. 63, No. 11, 10/9/43, pp.170-172.)
466	14396	G.B.	*Impurities in Zinc Alloys.* (Metal Industry, Vol. 63, No. 11, 10/9/43, p. 172.)
467	14463	G.B.	*The Problem of Copper and Galvanised Iron in the Same Water System.* (L. Kenworthy, Engineering, Vol. 156, No. 4,052, 10/9/43, p. 205.)
468	14536	U.S.A. ...	*W.E.B. Makes Recommendations for Conservation of Tungsten.* (S.A.E. Journal, Vol. 51, No. 8, August, 1943, p. 41.)
469	14579	G.B.	*Post-War Tin Supplies.* (Engineering, Vol. 156, No. 4053, 17/9/43, p. 228.)
470	14668	G.B.	*The Fatigue and Corrosion-Fatigue of Copper Alloys.* (J. W. Donaldson, Metal Industry, Vol. 63, No. 12, 17/9/43, pp. 178-180.)
471	14672	G.B.	*Lead-Base Casting Alloys.* (Metal Industry, Vol. 63, No. 12, 17/9/43, p. 185.)
472	14726	G.B.	*Beryllium-Copper and its Applications.* (Scientific Insts., Vol. 20, No. 8, August, 1943, p. 134.)
473	14792	G.B.	*The Fatigue and Corrosion-Fatigue of Copper Alloys (Concluded).* (J. W. Donaldson, Metal Industry, Vol. 63, No. 13, 24/9/43, pp. 198-200.)
474	14833	G.B.	*Tin in White Metal Bearings.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, pp. 292-296.)
			Plastics and Resin.
475	14072	Germany ...	*Accuracy of Moulded Threads in Plastic Material.* (Kunststoffe, Vol. 32, No. 4, April, 1943, pp. 113-124.) (K. Mehdorn, Engineers Digest, Vol. 4, No. 6, June, 1943, pp. 172-174.)
476	14207	G.B.	*Plastics in Structural Engineering (Comparison between the Structural Properties of a Plastic of the Laminated Veneer Type and those of AZM Magnesium Alloy, Duralumin, etc.).* (L. P. Dudley, Plastics, Vol. 7, No. 76, September, 1943, pp. 377-383.)

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477	14225	U.S.A. ...	*New Heat-Resistant Plastic (Lucite Molding Powder).* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, 25/7/43, p. 1177.)
478	14226	U.S.A. ...	*Plastics Research and Production in Canada.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, 25/7/43, p. 1180.)
479	14260	G.B.	*Thermoplastic Cables.* (W. Bishop, Plastics, Vol. 7, No. 76, September, 1943, p. 384.)
480	14261	G.B.	*Fire Hazards in the Plastic Industry—I.* (H. R. Fleck, Plastics, Vol. 7, No. 76, September, 1943, pp. 385-387.)
481	14262	G.B.	*Plastics in South Africa.* (Plastics, Vol. 7, No. 76, September, 1943, p. 387.)
482	14263	G.B.	*Impregnating Media for Cable Covering and General Insulation.* (Plastics, Vol. 7, No. 76, September, 1943, p. 388.)
483	14265	Italy	*Plastics for Chemical Plant (Report from "Materie Plastische" 1942/11/26).* (G. Lombardo, Plastics, Vol. 7, N. 76, September, 1943, pp. 391-399.)
484	14266	G.B.	*Metallizing Plastics (Continued).* (E. E. Halls, Plastics, Vol. 7, No. 76, September, 1943, pp. 400-407.)
485	14267	G.B.	*Urea and Alkyd Resins in Water-Repellent Coatings.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 408-410.)
486	14269	G.B.	*Resinoids and Other Plastics as Film Formers. XX—Problems of Polymerization.* (B. J. Brajnikoff, Plastics, Vol. 7, No. 76, September, 1943, pp. 414-424.)
487	14270	G.B.	*Ethyl Cellulose—New Products.* (Plastics, Vol. 7, No. 76, September, 1943, p. 424.)
488	14273	G.B.	*Self Ignition Temperature of Cellulose.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
489	14287	G.B.	*Plastic Bodywork, Part I. A Review of the Principal Materials and Methods.* (W. Nichols, The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 361-365.)
490	14340	U.S.A. ...	*Points on Plastics in Aircraft Engineering (Part III).* (J. Sasso, Aviation, Vol. 42, No. 6, June, 1943, pp. 178-180, 356-361.)
491	14430	U.S.A. ...	*Cast Resin Cowling Die.* (Flying, Vol. 33, No. 2, August, 1943, p. 140.)
492	14553	G.B.	*Aircraft Plastics—Part I.* (W. Nichols, British Plastics, Vol. 15, No. 172, September, 1943, pp. 192-198.)
493	14554	G.B.	*A Plastics Liquid Glue for Bonding Metals on Wood.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 198.)
494	14555	G.B.	*A Visit to America (including Account of American Use of Plastics).* (H. V. Potter, British Plastics, Vol. 15, No. 172, September, 1943, pp. 199-200.)
495	14558	G.B.	*The Uses of Acrylic Resins.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 212.)

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496	14561	G.B.	*New Dielectric Material—Polectron (Thermoplastic Resin).* (British Plastics, Vol. 15, No. 172, September, 1943, pp. 215-216.)
497	14563	G.B.	*Stratosphere Test Chamber made of Transparent Acrylic Plastics.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 218.)
498	14564	G.B.	*Synthetic Resin Laminated Wood Insulation.* (A. E. I. Jervis, British Plastics, Vol. 15, No. 172, September, 1943, pp. 223-228.
499	14565	G.B.	*Plastics Models Aid Design of Chemical Plants.* (H. W. Perry, British Plastics, Vol. 15, No. 172, September, 1943, pp. 237-240.)
500	14567	G.B.	*Phenolic Glues for Marine Use.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 242.)
501	14578	G.B.	*Glues (Bulletin No. 9, Sept., 1943, Aero Research, Ltd.).* (Engineering, Vol. 156, No. 4,053, 17/9/43, p. 225.)
502	14601	G.B.	*Pytram Plastic (Cellulose Base).* (A.T.Z., Vol. 45, No. 21, 10/11/42, p. 585.)
503	14682	G.B.	*Molecular Structure and Plastic Fibre Formation.* (J. R. Whinfield, Chemistry and Industry, Vol. 62, No. 38, 18/9/43, pp. 354-356.)
504	14838	G.B.	*New Thermoplastics.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, pp. 306-307.)
505	14989	U.S.A. ...	*The Plastic Hand Grenade.* (L. J. Falkenhagen, Modern Plastics, Vol. 20, No. 10, June, 1943, pp. 66-67.)
506	14991	U.S.A. ...	*Plastic Fittings for the Thunderbolt.* (Modern Plastics, Vol. 20, No. 10, June, 1943, pp. 72-73.)
507	14992	U.S.A. ...	*High-Altitude Test Chamber Built of Transparent Acrylic Sheet.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 74.)
508	14993	U.S.A. ...	*Plastic Map and Data Case for Aircraft.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 75.)
509	14994	U.S.A. ...	*Plastic Nameplates for Army and Navy Equipment.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 75.)
510	14995	U.S.A. ...	*Spare Lamp Box for Big Bombers (Made of Plastic).* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 74.)
511	14997	U.S.A. ...	*Seaplane Floats Made of Plastic-Bonded Plywood.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 84.)
512	14998	U.S.A. ...	*Unlimited Revolutions for Gun Turrets. (The Use of Plastics in the Power Transmission Unit.)* (Modern Plastics, Vol. 20, No. 10, June, 1943, pp. 85-87.)
			Rubber (Nat. and Syn.).
513	13932	U.S.A. ...	*Synthetic Rubber Production in the U.S.A.* (Engineering, Vol. 156, No. 4045, 23/7/43, p. 68.)
514	13963	U.S.A. ...	*Vinylidere Choloride Polymers.* (R. C. Reinhardt, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 422-428.)

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515	13973	U.S.A. ...	*The U.S. Synthetic Rubber Programme.* (W. J. Murphy, Ind. and Eng. Chem., Vol. 21, No. 11, 10/6/43, pp. 864-877.)
516	14055	U.S.A. ...	*Effect of Petroleum Products on Buna S. Vulcanizates.* (R. E. Morris and others, Ind. and Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, pp. 646-649.)
517	14221	U.S.A. ...	*American Production of Butadiene—Review of Processes Employed, etc.* (P. K. Frolich, C. E. Morrell, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, 25/7/43, pp. 1138-1145.)
518	14234	U.S.A. ...	*Effectiveness of Shear-Stressed Rubber Compounds in Isolating Machinery Vibration.* (B. C. Madden, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 617-624.)
519	14253	U.S.A. ...	*Non-Inflammable Sponge Made from Koroseal (Plasticized Polyvinyl Chloride).* (American Aviation, Vol. 7, No. 5, 1/8/43, p. 56.)
520	14289	G.B.	*Rubber—Natural and Synthetic Supplies.* (C. Ridley, The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 366-368.)
521	14345	U.S.A. ...	*Hycar Synthetic Rubber (Data Sheets).* (Aviation, Vol. 42, No. 6, June, 1943, pp. 195-197.)
522	14444	G.B.	*U.S. Government Synthetic Rubber Plant.* (Engineering, Vol. 156, No. 4051, 3/9/43, pp. 181-183.)
523	14457	G.B.	*Rubber Producing Dandelions in Sweden.* (Nature, Vol. 152, No. 3848, 31/7/43, p. 131.)
524	14491	G.B.	*Electrical Properties of Neoprene.* (Electrician, Vol. 131, No. 3404, 27/8/43, pp. 207-208.)
525	14493	G.B.	*The Molecular Structure of Rubber.* (H. P. Stevens, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, p. 351.)
526	14566	G.B.	*Flexible Polystyrene Sheet.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 240.)
527	14716	U.S.A. ...	*Use of the Shore Durometer for Measuring the Hardness of Synthetic and Natural Rubbers (with Discussion).* (R. H. Taylor, A.S.T.M., No. 123, August, 1943, pp. 25-30.)
528	14817	G.B. ...	*A New Synthetic Rubber—"Paracon."* (Nature, Vol. 152, No. 3854, 11/9/43, p. 297.)
529	14847	U.S.A. .	*Synthetic Tyres Pass Rigid Test.* (National Petroleum News, Vol. 35, No. 31, 4/8/43, p. 24.)
			Wood and Plywood.
530	13744	U.S.A. .	*The Manufacture of Curved Plywood.* (T. D. Perry, Mechanical World, Vol. 114, No. 2955, 20/8/43, pp. 204-207.)
531	14056	U.S.A. ..	*Thermal Conductivity Nomographs for Wood.* (D. S. Davis, Ind. and Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, p. 673.)
532	14212	G.B.	*Wood Cellulose Manufacture (Flowsheet No. 116).* (Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 241-242.)

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533	14223	U.S.A. ...	*Chemically Treated Wood in War and Industry.* (W. P. Arnold, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, 25/7/43, pp. 1168-1171.)
534	14271	G.B.	*Advisory Panel on Wood.* (Plastics, Vol. 7, No. 76, September, 1943, p. 376.)
535	14276	G.B.	*Engineering Aspects of Plywood.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
536	14372	U.S.A. ...	*American Timbers.* (Nature, Vol. 152, No. 3853, 4/9/43, p.259.)
537	14562	G.B.	*New German Type of Processed Wood (Pressband).* (British Plastics, Vol. 15, No. 172, September, 1943, p. 216.)
538	14719	U.S.A. ...	*Discussion of Paper on Stress-Strain Relations in Timber Beams (Douglas Fir).* (A.S.T.M., No. 123, August, 1943, pp. 45-47.)
			Glass and Ceramics.
539	13759	U.S.A. ...	*Glass Gauges.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 32.)
540	13974	U.S.A. ...	*Shatterproof Material for Windows, "Lumapane."* (Ind. and Eng. Chem. (New Edition), Vol. 21, No. 11, 10/6/43, p. 892.)
541	14447	G.B.	*Glass for Precision Gauges.* (Engineering, Vol. 156, No. 4051, 3/9/43, p. 188.)
			Silver and Gold.
542	14504	G.B.	*Precipitation in Single Crystals of Silver-Rich and Copper-Rich Alloys of the Silver Copper System.* (F. W. Jones and others, Proceedings of the Royal Society, Vol. 181, No. 985, 31/12/42, pp. 154-168.)
543	14507	G.B.	*The Hardness of Primary Solid Solutions with Special Reference to Alloys of Silver.* (J. H. Frye and W. Hume-Rothery, Proceedings of the Royal Society, Vol. 181, No. 984, 24/9/42.)
544	14015	U.S.A. ...	*Detection of Gold in Plating.* (M. Lerner, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, p. 416.)
			Cement, Concrete.
545	14472	G.B.	*The Frost Resistance of Concrete.* (A. E. Collins, Journal of the Society of Chemical Industry, Vol. 62, No. 8, August, 1943, pp. 113-116.)
546	14720	U.S.A. ...	*Discussion of Paper on Effect of Height of Test Specimens on Compressive Strength of Concrete.* (A.S.T.M., No. 123, August, 1943, pp. 48-49.)
547	14721	U.S.A. ...	*Discussion of Report of Air-Permeability Method for Determining Fineness of Cement.* (A.S.T.M., No. 123, August, 1943, pp. 49-50.)
			Leather, Cork, Paper.
548	13972	U.S.A. ...	*Manufactured Abrasives—Old and New.* (R. R. Ridgway, Ind. and Eng. Chem. (New Ed.), Vol. 21, No. 11, 12/6/43, pp. 858-862.)

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549	14264	G.B. ...	... *Thermal Conductivity of Various Heat Insulating Materials (Cork, Glass Wool, Cellulose Plastics, etc.).* (Plastics, Vol. 7, No. 76, September, 1943, p. 388.)
550	14460	G.B. ...	... *Acid Neutralization in Insulating Papers.* (Nature, Vol. 152, No. 3848, 31/7/43, p. 140.)
551	14841	G.B. ...	... *Care of Leather Belting.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, p. 305.)
			Crayons, Paints, Lacquers.
552	13865	U.S.A.	... *Determination of Specific Gravity of Dry Paint Pigments.* (I. Baker and C. Martin, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, p. 279.)
553	14285	G.B. ...	... *Controlling Pre-heating Temperatures for Welding by the Use of Temperature Indicating Crayons and Paint.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 359.)
554	14286	G.B. ...	... *Production of High-Grade Lacquer Finishes.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 360.)
555	14492	G.B. ...	... *Shellac—its Uses in Modern Industry and in Wartime.* (A. J. Gibson, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, p. 346.)
556	14556	G.B. ...	... *Fabric Doping (New Du Pont Lacquer).* (British Plastics, Vol. 15, No. 172, September, 1943, p. 202.)
			General Properties of Metals.
557	14046	Germany	... *Plastic Properties of Crystals and Metals (Book Review).* (T. Paschl, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 366-367.)
558	14071	Germany	... *Ageing in Cast Iron* (from "Die Giesserei," Vol. 19, No. 21, Oct., 1942, p. 358). (E. Piwowarsky, Engineers' Digest, Vol. 4, No. 6, June, 1943, p. 172.)
559	14195	U.S.A.	... *Early Detection of Fatigue Cracks.* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 96.)
560	14199	U.S.A.	... *Intergranular Corrosion.* (J. H. G. Monypenny, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 104-105.)
561	14241	U.S.A.	... *A Discussion on Embrittlement Cracking and How to Prevent it.* (A. A. Berk and W. C. Schroeder, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 701-711.)
562	14290	U.S.A.	... *Bearing Alloys—an Investigation of the Corrosion Problem.* (L. Raymond, The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 369.)
563	14670	G.B. ...	... *Measurement of Grain Size.* (H. M. Malies, Metal Industry, Vol. 63, No. 12, 17/9/43, p. 182.)
			B. Fabrication.
			Welding and Riveting.
564	13293	U.S.A.	... *Automatic Riveting.* (Scientific American, Vol. 169, No. 2, August, 1943, p. 90.)

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565	13884	G.B.	*Salvaging Imperfect Aluminium Castings by Atomic-Hydrogen Welding.* (Light Metals, Vol. 6, No. 67, Aug., 1943, p. 396.)
566	13931	G.B.	*Automatically Controlled Spot-Welding Machine.* (Engineering, Vol. 156, No. 4,045, 23/7/43, pp. 66-67.)
567	14196	U.S.A. ...	*Under-Water Resistance Welding.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 97-98.)
568	14201	U.S.A. ...	*Good Penetration at High Welding Rates.* (L. K. Stringham, Metal Progress, Vol. 44, No. 1, July, 1943, p. 106.)
569	14488	G.B.	*Armour Plate Welding.* (Electrical Review, Vol. 133, No. 3430, 20/8/43, p. 242.)
570	14530	U.S.A. ...	*Cold Welding.* (S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 25-31.)
571	14589	Germany ...	*The Elin Electric Welding Process (air shielded electrode).* (A.T.Z., Vol. 45, No. 19, 10/10/42, p. 531.)
572	14654	G.B.	*Fusion Welding Processes—A Survey of Some Techniques Available for Aluminium Alloys.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 491-494.)
573	14708	G.B.	*Spot-Welding of Aluminium-Clad Steel.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)
574	14796	G.B.	*Welding Aluminium-Iron Alloys (Patent).* (Metal Industry, Vol. 63, No. 13, 24/9/43, p. 202.)
			Heat Treatment.
575	13169	U.S.A. ...	*Converting Furnaces from Oil to Coal Firing. Application of Concession Methods to Boiler and Metallurgical Furnaces.* (Mechanical Eng., Vol. 65, No. 8, August, 1943, pp. 573-580.)
576	13184	G.B.	*Correlative Foundry Practice and Quality of Light Alloy Castings.* (H. G. Warrington, Mechanical World, Vol. 114, No. 2953, 6/8/43, pp. 147-150.)
577	13886	G.B.	*Control in Aluminium Foundries.* (Light Metals, Vol. 6, No. 67, August, 1943, pp. 397-398.)
578	14076	Germany ...	*Nitriding Process and Steel Corrosion* (Stahl and Eisen, Vol. 62, No. 23, June 42, pp. 489-490). (G. Hieber, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 180-181.)
579	14100	G.B.	*The Uses of Controlled Atmospheres in the Metal Industries.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1535-1540-1544.)
580	14173	U.S.A. ...	*Thin Case Hardening with Radio Energy.* (V. W. Sherman, Metal Progress, Vol. 44, No. 2, August, 1943, pp. 261, 294.)
581	14180	U.S.A. ...	*Melting, Alloying, Heating Aluminium and Alloy Ingot.* (R. R. LaPelle, Metal Progress, Vol. 44, No. 2, August, 1943, pp.276-282.)
582	14189	U.S.A. ...	*Case Hardening Large Gears with High Frequency Current.* (G. C. Riegel, Metal Progress, Vol. 44, No. 1, July, 1943, pp.78-83.)
583	14193	U.S.A. ...	*On the Quenching Process.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 94-95.)

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584	14200	U.S.A. ...	*Minimising Hardening Strains.* (B. J. Shepherd, Metal Progress, Vol. 44, No. 1, July. 1943, p. 105.)
585	14204	U.S.A. ...	*Increasing the Yield of Electric Furnaces.* (E. F. Walther, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 111-112.)
586	14275	G.B.	*Induction Heating of Moulds.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
587	14284	G.B.	*Pressed Pistons (Advanced Technique in Forging Light Wrought Alloys).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 349-359.)
588	14401	G.B.	*Heat Treatment Plant for Steel Tools.* (Engineer, Vol. 176, No. 4574, 10/9/43, pp. 213-214.)
589	14464	G.B.	*Heat-Treatment Plant for Tools.* (Engineering, Vol. 156, No. 4052, 10/9/43, p. 206.)
			Surface Protection (Plating, etc.).
590	13328	G.B.	*Protective Finishes for Bearing Surfaces in Apparatus.* (Machinery, Vol. 63, No. 1607, 29/7/43, p. 130.)
591	13643	G.B.	*Descaling and Pickling Processes, Pt. II (cont.).* (Silman, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1015-1023.)
592	13684	G.B.	*Descaling and Pickling Processes, Pt. II* (cont.). (H. Silman, Sheet Metal Industries, Vol. 18, No. 196, 30/8/43, pp. 1385-1390.)
593	13733	G.B.	*Salvaging Worn Surface Plates by Chromium Plating.* (Machinery, Vol. 63, No. 1610, 19/8/43, p. 217.)
594	13840	G.B.	*New Method of Copper Plating (High Speed Cyanide Bath).* (Engineering, Vol. 156, No. 4,050, 27/8/43, p. 164.)
595	13880	G.B.	*Chromium Plating for Drills, Taps and Reamers.* (Light Metals, Vol. 6, No. 67, Aug., 1943, pp. 366-370.)
596	13889	G.B.	*Water Repellent Coatings on Aluminium.* (Light Metals, Vol. 6, No. 67, Aug., 1943, pp. 413-414.)
597	13924	G.B.	*Control of Ammonia in the Electrodeposition of Brass.* (J. H. Monaweck, Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 59-60.)
598	14191	U.S.A. ...	*Electroplating Metals (Data Sheet).* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 88a.)
599	14484	G.B.	*Developments in Electroplating.* (Mechanical World, Vol. 114, No. 2957, 3/9/43, pp. 274-276, 280.)
600	14688	G.B.	*Surface Protection of Magnesium Alloys....* (N. Parkinson and J. W. Cuthbertson, Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 473-475.)
601	14713	G.B.	*Surface Protection of Magnesium (Phosphoric-Acid Process).* (Light Metals, Vol. 6, No. 68, September, 1943, pp. 454-456.)

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				Casting and Drawing.
602	13640	G.B.	... ...	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Sheet Metal Industries, Vol. 18, No. 197, June, 1943, pp. 995-1000, 1009.)
603	13726	G.B.	... ...	*Plastic Treatment of Porous Castings.* (Machinery, Vol. 63, No. 1610, 19/8/43, p. 203.)
604	13848	G.B.	... ...	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Engineering, Vol. 156, No. 4050, 27/8/43, p. 178-180.)
605	13960	G.B.	... ...	*Casting Technique for Plastics.* (New Material known as " Thermocast " having Ethyl Cellulose Base.) (V. E. Yarsley, Times, Trade and Eng., Vol. 53, No. 954, Aug., 1943, p. 36.)
606	14102	G.B.	... ...	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1547-1552.)
607	14184	G.B.	... ...	*Improving the Mould Drawing* (Technical Bulletin, August, 1943.) (Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 54-56.)
608	14393	G.B.	... ...	*Direct Cooling Process of Casting Metal Ingots.* (H. F. James, Metal Industry, Vol. 63, No. 11, 10/9/43, p. 169.)
609	14397	G.B.	... ...	*Moulding Sands.* (Metal Industry, Vol. 63, No. 11, 10/9/43, p. 172.)
610	14451	G.B.	... ...	*Two Stage Drawing of Cylindrical Cups (contd.).* (H. W. Swift, Engineering, Vol. 156, No. 4051, 3/9/43, pp. 199-200.)
611	14469	G.B.	... ...	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Engineering, Vol. 156, No. 4052, 10/9/43, p. 219.)
612	14482	G.B.	... ...	*Straightening Magnesium Castings* (Mechanical World, Vol. 114, No. 2957, 3/9/43, p. 272.)
613	14583	G.B.	... ...	*The Production of Malleable Iron Castings.* (J. Roxburgh, Engineering, Vol. 156, No. 4053, 17/9/43, pp. 236-240.)
614	14671	G.B.	... ...	*Cores for Magnesium Castings—I.* (N. M. Briskin and G. Walker, Metal Industry, Vol. 63, No. 12, 17/9/43, pp. 183-185.)
615	14797	G.B.	... ...	*Cores for Magnesium Castings—II.* (N. M. Briskin and G. Walker, Metal Industry, Vol. 63, No. 13, 24/9/43, pp. 203-204.)
				Rolling, Milling, Cutting.
616	13174	G.B.	... ...	*The Milling of Marine Turbine Blades.* (E. L. Spray, Machinery, Vol. 63, No. 1606, August, 1943, pp. 85-88.)
617	13637	G.B.	... ...	*Rolling, Processing and Testing Tinplate (contd.).* (W. E. Hoare and E. S. Hedges, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 975-978.)
618	13638	G.B.	... ...	*Cold and Hot Rolling of Metals* (RTP Translation, No. 1735). (O. Emicke and K. H. Lucas, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 979-987.)

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619	14101	Germany ...	*Cold and Hot Rolling of Metals.* (O. Emicke and K. H. Lucas, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1541-1544.)
620	14214	G.B.	*Cutting of Plate Cams.* (J. A. Park, Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 244-245.)
621	14479	G.B.	*Mill Hardening (Direct Heat Treatment from the Rolling Mill).* (J. Winning, Mechanical World, Vol. 114, No. 2957, 3/9/43, pp. 259-262.)
622	14775	G.B.	*The Structural Changes Effected in 70:30 Brass Strip by Cold Rolling and Annealing.* (M. Cook and T. L. Richards, Institute of Metals, Vol. 69, No. 8, August, 1943, pp. 351-371.)
			Polishing, Machining, Grinding.
623	13535	G.B.	*Machining Operations on Marine Diesel Engines.* (Machinery, Vol. 63, No. 1603, 1/7/43, pp. 17-19.)
624	14120	G.B.	*An Alternative Method of Machining a Curved Surface.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, p. 403.)
625	14181	G.B.	*Thread Grinding.* (W. A. Atley, Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 251-264.)
626	14197	U.S.A. ...	*Rapid Polishing for Preparing Specimens for Inspection.* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 98.)
627	14837	G.B.	*Plain Grinding on a Cutter Grinder.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, p. 305.)
			Soldering and Brazing.
628	13639	G.B.	*The Joining and Protection of Metals.* (D. G. P. Paterson, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 989-992.)
629	13680	G.B.	*The Joining and Protection of Metals.* (D. G. P. Paterson, Sheet Metal Industries, Vol. 18, No. 196, 30/8/43, pp. 1349-1354.)
630	14428	U.S.A. ...	*Improvised Solder Pot.* (Flying, Vol. 33, No. 2, August, 1943, p. 140.)
631	14705	Russia ...	*Soldering Aluminium Bronze.* (Baryshnikov, Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
632	14718	U.S.A. ...	*Conservation of Tin in Soft Solders (with Discussion).* (D. L. Colwell and W. C. Lang, A.S.T.M. No. 123, August, 1943, pp. 37-43.)
			Powder Metallurgy.
633	14063	G.B.	*Symposium of Powder Metallurgy.* (Metal Industry, Vol. 63, No. 5, 30/7/43, pp. 69-70.)
			Machines and Tools.
634	13421	G.B.	*Modifying the Profiles of Involute Gears on Gear Grinding Machines.* (H. Walker, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 181-184.)
635	13426	G.B.	*Broken Tools—A New Method of Removal from Drilled Holes.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 190.)

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636	13727	G.B.	*Prolonging the Fatigue Life of Machine Parts.* (Nitriding, etc.) (Machinery, Vol. 63, No. 1610, 19/8/43, p. 204.)
637	13728	G.B.	*Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1610, 19/8/43, pp. 206-210.)
638	13761	U.S.A. ...	*Reclaiming Tools.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 36.)
639	14182	G.B.	*New Tools from Scrap High Speed Steel (with Discussion).* (U. F. T. Morris, Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 265-279.)
640	14600	Germany ...	*High Speed Tool Steel.* (H. Kalpers, A.T.Z., Vol. 45, No. 21, 10/11/42, pp. 582-585.)

C. Inspection.

X and Gamma Ray Inspection.

641	13269	U.S.A. ...	*X-Rays for Welds.* (Aircraft Productions, Vol. 5, No. 59, September, 1943, p 414.)
642	14066	G.B.	*A Rapid Gamma Ray Inspection Technique.* (R. C. Woods, Metal Industry, Vol. 63, No. 5, 30/7/43, p. 73.)
643	14192	U.S.A. ...	*X-Ray Inspection of Castings (Army, Air Forces' Requirements).* (R. Katz, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 89-94.)
644	14279	G.B.	*An X-Ray Study of the Dissociation of an Alloy of Copper, Iron and Nickel.* (V. Daniel and H. Lipson, Proceedings of the Royal Society, Vol. 181, No. 987, 28/7/43, pp. 368-378.)

Supersonic, Magnetic Inductive Methods, etc.).

645	14178	U.S.A. ...	*Observation Disc for Microscopic Examinations.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 275.)
646	14551	G.B.	*List of References on Supersonic Methods of Testing Materials.* (R.T.P.3, Bibliographies, No. 87, August, 1943.)
647	14619	Germany ...	*Testing of Composite Bearing Shells by the Thermocolour Process.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 547.)
648	14650	Germany ...	*Non-Destructive Testing of Non-Ferrous Semi-finished Metal Parts by New Magnetic Inductive Methods.* (W. Schirp, A.T.Z., Vol. 64, No. 3,132, 12/8/43, pp. 413-414.)
649	14701	Germany ...	*Electron Microscope Technique for Investigating the Texture of Samples of Fe and Steel Surfaces.* (Light Metal, Vol. 6, No. 68, September, 1943, p. 445.)
650	14711	Germany ...	*The Controlled Interrupted Arc for Quantitative Spectro-chemical Analysis.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)

Mechanical and Chemical Testing.

651	13641	G.B.	*Testing of Continuity of Thin Tin Coatings on Steel.* (R. Kerr, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1001-1002, 1009.)

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652	13754	G.B. ...	*Spark Testing of Steels.* (Mechanical World, Vol. 124, No. 2955, 20/8/43, pp. 223-224.)
653	13863	U.S.A. ...	*Determination of Tin in Babbitts, White Metal Alloys and Bronze.* (E. T. Saxer and R. E. Minto, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, pp. 261-262.)
654	13887	G.B. ...	*Determination of Manganese in Aluminium Alloys.* (Factors affecting the accuracy of the Ammonium Persulphate Method.) (G. H. Osborn and W. Stross, Light Metals, Vol. 6, No. 67, August, 1943, pp. 402-406.)
655	14019	G.B. ...	*Significance of Mechanical Test Properties of Metals.* (H. O'Neill, Engineering, Vol. 156, No. 4044, 16/7/43, pp. 56-58.)
656	14176	U.S.A. ...	*Mechanical Aspects of Hardness Testing.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 273.)
657	14179	U.S.A. ...	*Quick Test for Manganese in Steel.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 275.)
658	14219	G.B. ...	*Spark Testing of Steel.* (Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 253-254.)
659	14714	Germany ...	*Brinell Tests of Aluminium Alloys (from "Aluminium," 1942/24/347).* (Rajakowicz and Maier, Light Metals, Vol. 6, No. 68, September, 1943, pp. 457-466.)
660	14715	U.S.A. ...	*Use and Misuse of the Salt Spray Test as Applied to Electrodeposited Metallic Finishes (with Discussion).* (C. H. Sample, A.S.T.M., No. 123, August, 1943, pp. 19-24.)
661	14840	G.B. ...	*Spark Testing of Steels.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, pp. 313-314.)
			Quality Control.
662	13874	U.S.A. ...	*Quality through Inspection* (Ordnance Material). (G. R. Gause, Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 117-120.)
663	14336	U.S.A. ...	*Quality Control Keeps Product Standards High.* (B. Holland, Aviation, Vol. 42, No. 6, June, 1943, pp. 160-162, 320-327.)
664	14683	G.B. ...	*The Plessey Method of Controlling Quality.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 459-463.)
			INSTRUMENTS.
			Electrical, Magnetic, Electronic.
665	14462	G.B. ...	*The Cyclotron.* (T. F. Wall, Engineering, Vol. 156, No. 4052, 10/9/43, pp. 201-203.)
666	14495	G.B. ...	*A Thermostatically Controlled Glass Electrode Apparatus for Ph. Measurements.* (L. F. Le Brocq, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, pp. 350-351.)
667	14505	G.B. ...	*A New Method of Determining Half-Value Periods from Observations with a Single Geiger Counter.* (A. G. Ward, Proceedings of the Royal Society, Vol. 181, No. 985, 21/12/42, pp. 183-197.)
668	14613	Germany ...	*The Development of the Bosch High Tension Magneto.* (F. Schildberger, A.T.Z., Vol. 45, No. 18, 25/9/42, pp. 501-507.)

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669	14636	U.S.A.	...	*A Mica Window Geiger Counter Tube for Measuring Soft Radiations.* (D. H. Copp and D. M. Greenberg, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 205-206.)
670	14647	G.B.	...	*Characteristics of Decibel Meters.* (J. H. Jupe, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 166-167.)
671	14723	G.B.	...	*Codes and Conventions in Electronic Apparatus.* (G. Parr, Journal Scientific Inst., Vol. 20, No. 8, August, 1943, pp. 121-124.)
672	14731	G.B.	...	*The Law of the Moving-Iron Instrument (Abstract).* (G. F. Tagg, Institution of Electrical Engs., Pt. I, Vol. 90, No. 32, August, 1943, p. 367.)
673	14732	G.B.	...	*Theory of the Force or Torque of Soft-Iron Electrical Instruments (Abstract).* (C. V. Drysdale, Institution of Electrical Engs., Pt. I, Vol. 90, No. 32, August, 1943, pp. 367-368.)
				Physical.
674	14503	G.B.	...	*A Detector of Condensation in High-Velocity Steam.* (A. M. Binnie and J. R. Green, Proceedings of the Royal Society, Vol. 181, No. 985, 31/12/42, pp. 134-154.)
675	14637	U.S.A.	...	*Simple and Accurate Formula for Barometric Corrections.* (L. Cintra Do Prado, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 221-222.)
676	14696	U.S.A.	...	*Piezoelectric Pressure Recorders of High Natural Frequency Vibration Characteristics and Protection Against Interference by Inertia Forces.* (V.D.I. Forschungsheft, No. 407, March-April, 1941, pp. 1-25.) (R.T.P. Translation No. T.M. 1,040.) (W. Gohlke, N.A.C.A., T.M. 1,040, Feb., 1943.)
677	14823	G.B.	...	*Measurement of Anomalous Viscosity by the Capillary Tube method.* (A. C. Merrington, Nature, Vol. 152, No. 3,851, Aug. 21, 1943.)
				Automatic, Mechanical.
678	14639	U.S.A.	...	*An Automatic Frequency-Controlled Oscillator and Amplifier for Driving Mechanical Vibrators.* (E. V. Potter, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 207-215.)
679	14728	G.B.	...	*Discussion on "The Soot Blower, with Special Reference to the Present Position of Power and Automatic Operation of Mechanical Blowers."* (Institution of Electrical Engs., Pt. II, Vol. 90, No. 16, August, 1943, pp. 259-261.)
				Flow Meters.
680	13188	G.B.	...	*Telemetering of Fluids—III.* (Mechanical World, Vol. 114, No. 2,953, 6/8/43, p. 165.)
681	14624	Germany	...	*Metering Device for Fluids Under Pressure, Pt. No. 72,004.* (M. Mengl, A.T.Z., Vol. 45, No. 20, 25/10/42, p. 567.)

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682	15028	U.S.A. ...	*New Aircraft Fuel Gauge.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 99.)
			Optical.
683	14641	G.B. ...	... *A Monoscope for Testing Cathode Ray Tubes (Testing Resolving Power by Means of Photographic Films Deposited Internally).* (W. Ehrenberg and G. P. Newton, Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 148.)
684	14816	G.B. ...	... *Principles of the Use of Non-Reflecting Films in Optical Instruments.* (K. M. Greenland, Nature, Vol. 152, No. 3,854, 11/9/43, pp. 290-292.)
			Medical.
685	14730	G.B. ...	... *The Electrical Amplifying Stethoscope and Phono-Electrocardioscope (Abstract).* (G. E. Donovan, Institution of Electrical Engs., Pt. 1, Vol. 90, No. 32, Aug., 1943, pp. 364-366.)
			PRODUCTION.
			Organisation and Control.
686	14206	U.S.A.	... *Where to Buy (Index of American Manufacturers Classified Under Products).* (Metal Progress, Vol. 44, No. 1, July, 1943.)
687	14244	U.S.A.	... *Planning for Disposing American Surplus Aircraft.* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 24, 46, 60.)
688	14312	U.S.A.	... *Aviations Directory of the Industry.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 265-271.)
689	14315	U.S.A.	... *Directory of Aviation Products and Services with List of Suppliers.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 275-383.)
690	14319	U.S.A.	... *America at War (Aircraft Production Board Chart).* (Aviation, Vol. 42, No. 2, February, 1943, pp. 110, 400-405.)
691	14320	U.S.A.	... *Financial Outlook for the Aviation Industry.* (H. L. Federman, Aviation, Vol. 42, No. 2, February, 1943, pp. 116, 422.)
692	14349	U.S.A.	... *Mass Production Overhaul.* (J. H. Connelly, Aviation, Vol. 42, No. 6, June, 1943, pp. 213-215, 378-382.)
693	14369	U.S.A.	... *The Truman Report on the American Aircraft Industry.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 310.)
694	14581	G.B. ...	... *Outworking as an Aid to Production.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, pp. 231-232.)
695	14592	Germany	... *25 Years of German Standards (Review).* (A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 600-602.)
696	14618	Germany	... *Preliminary Investigation of War Patent Applications.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 563.)

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697	14680	G.B.	*A System of Works Control.* (D. Tiranti, Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 271-273.)
698	14689	G.B.	*Outworking Schemes for Expanding Production Programmes.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 475.)
699	14691	G.B.	*Summary of a Report of the Select Committee on National Expenditure on Aircraft Production.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 477-479.)
			Research and Training.
700	13412	G.B.	*Production Engineering Abstracts.* (J. Inst. Prod. Engs., Vol. 22, No. 5, May, 1943, pp. 41-46.)
701	14400	G.B.	*Education of Engineers—No. II.* (Engineer, Vol. 176, No. 4,574, September 10, 1943, pp. 212-213.)
702	14448	G.B.	*The Education and Training of Engineers.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, pp. 191-192, 195-198.)
703	14452	G.B.	*The Engineers' War.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 192.)
704	14454	G.B.	*Education Reconstruction, Cmd.* 6,458 (*H.M.S.O.*, 1943). (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 120-121.)
705	14455	G.B.	*Adolescence and Some Problems of Youth Training.* (C. W. Valentine, Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 122-124.)
706	14456	G.B.	*Scientific Research in Great Britain.* (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 129-130.)
707	14458	G.B.	*Education and Training for Engineers.* (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 137-138.)
708	14459	G.B.	*Science in Soviet Russia.* (J. G. Crowther, Nature, Vol. 152, No. 3,848, July 31, 1943, p. 138.)
709	14483	G.B.	*Education of Foundry Personnel.* (Mechanical World, Vol. 114, No. 2,957, September 3, 1943, pp. 272-273.)
710	14569	G.B.	*W. T. Henley's Education Scheme.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 225.)
711	14573	G.B.	*The Technical Training of Engineering Apprentices.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 232.)
712	14638	U.S.A. ...	*Federal Control of Research Activities.* (Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 195-204.)
713	14798	G.B.	*The Technical Training of Engineering Apprentices.* (Engineer, Vol. 176, No. 4,576, 24/9/43, p. 237.)
714	14822	G.B.	*Integration of Research in the United States.* (R. H. Heindel, Nature, Vol. 152, No. 3,851, 21/8/43, p. 212.)
715	14846	U.S.A. ...	*Woman Power in Refineries Surveyed.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 22-24.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Aircraft and Engine Production Methods.
716	14194	U.S.A. ...	*Wire-Stitching or Stapling for Unstressed Part of Aircraft (Heat Ducts, Sealing Gaskets, Map Cases, etc.).* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 96.)
717	14216	G.B.	*Engineering Developments in South Africa—Raw Material and Manufacturing Plants.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp.250-251.)
718	14321	U.S.A. ...	*Schematic Diagram of Bell Aircraft Wing. Production Lines and Detail Sketch of Installations.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 126-140.)
719	14330	U.S.A. ...	*How Lockheed Builds Steel Drop Tanks.* (R. A. Von Hake, Aviation, Vol. 42, No. 6, June, 1943, pp. 128-133.)
720	14331	U.S.A. ...	*Ford's Centrifugal Cast Cylinders.* (Chester S. Ricker, Aviation, Vol. 42, No. 6, June, 1943, pp. 134-137, 331.)
721	14334	U.S.A. ...	*Duramold Speeds Stabilizer Production.* (H. Chase, Aviation, Vol. 42, No. 6, June, 1943, pp. 150-153, 316-320.)
722	13335	U.S.A. ...	*The Offset Printing of Air Frame Templates (American Practice).* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 184-185.)
723	14378	U.S.A. ...	*Thompson Aircraft Products Plant (Mass Production of Hollow Sodium-Cooled Exhaust Valves).* (J. Geschelin, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 86-88, 205.)
724	14381	U.S.A. ...	*Using Automotive Methods to Speed Automatic Pilot Production.* (J. Geschelin, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 34-37, 66-70.)
725	14410	U.S.A. ...	*Detroit Builds Warplanes.* (C. Borth, Flying, Vol. 33, No. 2, August, 1943, pp. 44-46, 186-188.)
726	14427	U.S.A. ...	*Mass Producing Fortresses (Photos).* (Flying, Vol. 33, No. 2, August, 1943, p. 138.)
727	14584	Germany ...	*German Aircraft Production and New Development.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, pp. 153-154.)
728	14664	Germany ...	*Junkers Device for Bending Thin-Walled Light-Metal Tubes.* (Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 120.)
729	14687	G.B.	*Japanese Aircraft Output.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 472.)
730	14702	G.B.	*Repairing Duralumin Airscrew Blades at De Havillands.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 445.)
731	14828	U.S.A. ...	*Ford Applies Mass Production to Big Bombers.* (Machinist, Vol. 87, No. 8, June 12, 1943, pp. 20-34.)
732	14832	G.B.	*Manufacture of Steel Propellers for Aircraft.* (Mechanical World, Vol. 114, No. 2,958, Sept. 10, 1943, pp. 288-291.)

ITEM NO.	R.T.P. REF		TITLE AND JOURNAL.
			Guns, Shells, Tanks, Production Methods.
733	13261	U.S.A. ...	*Production of Gear Sets for Medium Tanks.* (J. Geschelin, Automotive Industries, Vol. 89, No. 2, 1/7/43, pp. 22-27, 69-70.)
734	13326	U.S.A. ...	*The Mass Production of Small Arms Ammunition.* (Machinery, Vol. 63, No. 1,607, 29/7/43, pp. 113-118.)
735	13531	G.B.	*The Manufacture of the Jerrican* (*Petrol Can*). (Machinery, Vol. 63, No. 1,603, 1/7/43, pp. 1-7.
736	13671	U.S.A. ...	*Broach Rifling Development* (*Prod. Methods*). (W. Baumbeck, Mech. Engineering, Vol. 65, No. 6, June, 1943, pp. 401-405.)
737	13677	U.S.A. ...	*Instrument Production at Westinghouse Meter Division.* (Mech. Engineering, Vol. 65, No. 6, June, 1943, p. 30.)
738	13682	G.B.	*Calculation Methods for the Blank Diameters of Drawn Shells.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1363-1364.)
739	13725	U.S.A. ...	*The Mass Production of Steel 75 mm. Shell Cases.* (R. B. Schenck, Machinery, Vol. 63, No. 1,610, 19/8/43, pp. 197, 202.)
740	13877	U.S.A. ...	*New Method of Shell Manufacture* (*Hydraulic Pressure for Sizing the Body of Shell*). (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, p. 137.)
741	13878	U.S.A. ...	*Wooden Models Aid Tank Production.* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 138-139.)
742	14105	G.B.	*Standardising Carbide Dies for Shell Case Production.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1561.)
743	14674	U.S.A. ...	*Bomb Casings Made Faster with Induction Heating.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 60.)
744	14733	G.B.	*Vickers Pom-Pom Gun Production: Machining Operations.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 281-286.)
745	14738	G.B.	*Broach Rifling Machine Gun Barrels.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 290-292.)
746	14745	G.B.	*Production of the Vickers Pom-Pom Gun.* (Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 253-260.)
747	14747	G.B.	*The Mass Production of Small Arms Ammunition.* (Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 263-266.)
			General Methods.
748	13258	G.B.	*Wire Spraying in the Production Shop.* (*Technical Bulletin, July*, 1943.) (W. E. Ballard, J. of the Inst. of Production Eng., Vol. 22, No. 7, July, 1943, pp. 34-41.)
749	13262	U.S.A. ...	*Production Illustrations as Applied to Precision Parts.* (R. Kay, Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 28-31, 62-64.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
750	13267	U.S.A. ...	*Production Short Cuts (Device for Keeping Surface of Kirksite Dies Horizontal for Repair Purposes, Packing Aluminium Alloy Rivets in Cellophane Bags to Reduce Losses, etc.).* (Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 32-33.)
751	13296	U.S.A. ...	*Industrial Explosives—New Uses for Dynamite.* (F. J. Bryne, Scientific American, Vol. 169, No. 2, August, 1943, pp. 56-58.)
752	13330	G.B.	*Production Power Stamping of Sheet Metal Parts.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 169-172.)
753	13393	G.B.	*Packing and Sorting Machinery (1933 to date).* (Sci. Lit. Bibliog. Series, No. 592, 1943.)
754	13480	G.B.	*Transfers Instead of Name Plates.* (Mechanical World, Vol. 113, No. 2,942, 21/5/43, p. 550.)
755	13500	G.B.	*Mechanical Rivet Sorting.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 637.)
756	13533	G.B.	*Electrolytic Tinplating Process Helps to Conserve Tin.* (Machinery, Vol. 63, No. 1,603, 1/7/43, p. 9.)
757	13594	G.B.	*Determining the Cleanliness of a Metal in the Degreasing Process.* (P. D. Liddiard, Metal Industry, Vol. 63, No. 9, 27/8/43, pp. 130-131.)
758	13650	G.B.	*Principles and Practical Sheets on Welding by Atomic Hydrogen (Part I).* (Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1061-1063.)
759	13651	G.B.	*Welding in Inaccessible Places by Means of the Elin Hafergut Process. (Translation from Elektroschweissung, Vol. 13, No. 8, pp. 120-122, 1942.)* (P. Ritter, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1064-1066.)
760	13692	G.B.	*Control of the Wastage of Arc Welding Electrodes.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1431, 1436.)
761	13760	U.S.A. ...	*Efficient Use of Air Grinders.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 35.)
762	13899	G.B.	*Mass Production with A.C. Welding. (Iron Age, 20/5/43, pp. 52-57.)* (W. J. Brooking, Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 9.)
763	13976	U.S.A. ...	*New Method Reduces Time and Labour in Die Production (Algoma Template Dies).* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 11.)
764	14106	G.B.	*Industrial Metal Finishing (Pt. III), Polishing Process.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1567-1574, 1602.)
765	14109	G.B.	*Mass Production of Press Formed Parts.* (R. Dewert, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1583-1599, 1602.)
766	14384	U.S.A. ...	*Stop Nut Developed for Use on Plywood.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 45.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
767	14425	U.S.A.	...	*Three-Dimensional Drawings Aids Production.* (A. D. Pyeatt, Flying, Vol. 33, No. 2, August, pp. 125-126, 134, 174.)
768	14606	Germany	...	*Saving in Material and Cost by Light Weight Construction.* (A.T.Z., Vol. 45, No. 17, September 10, 1942, pp. 471-474.)
769	14669	G.B.	...	*Drop Hammer Technique* (Metal Industry, Vol. 63, No. 12, 17/9/43, pp. 181-182.)
770	14736	G.B.	...	*The Technique of Wire-Spraying.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 288.)
771	14827	U.S.A.	...	*Marking Methods—I.* (A. Throp, Machinist, Vol. 87, No. 8, June 12, 1943, pp. 50E-51E.)
				Tools and Equipment.
772	13176	G.B.	...	*New Circuit Arrangement for Cooling-off Drilling Machine Motors.* (F. J. Johns, Machinery, Vol. 63, No. 1,606, 22/7/43, p. 91.)
773	13182	G.B.	...	*Direct-Current Adjustable-Speed Drives for Machine Tools.* (C. A. Caldwell, Machinery, Vol. 63, No. 1,606, 22/7/43, pp. 105-108.)
774	13264	U.S.A.	...	*Drill Press Fixture for Replacing Jigs and Templates.* (C. W. Fuller, Automotive Industries, Vol. 89, No. 1, 1/7/43, p. 39.)
775	13334	G.B.	...	*Broaching and Hobbing Starter Parts having Dual Lead Angles.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 182-184.)
776	13762	U.S.A.	...	*New Process for Stamping Dies (Algoma Template Dies).* (American Exporter, Vol. 133, No. 1, July, 1943, p. 42.)
777	14103	G.B.	...	*Non-Corrosive Fluxes for Electrical Work.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1552.)
778	14121	G.B.	...	*How to Increase the Life of Your Grinding Wheels.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, pp. 405-407.)
779	14218	G.B.	...	*Control of High-Speed Twist Drills.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 252-253.)
780	14386	U.S.A.	...	*Ingersoll-Rand Air Buck Jam Riveter (Designed to Work on Curved Cowling, etc.).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 45, 72.)
781	14426	U.S.A.	...	*Du Pont Explosive Rivets.* (Flying, Vol. 33, No. 2, August, 1943, pp. 130-134.)
782	14465	G.B.	...	*Heavy-Duty Metal-Cutting Machine.* (Engineering, Vol. 156, No. 4,052, September 10, 1943, p. 207.)
783	14517	G.B.	...	*Industrial Freezing Equipment (−120°F.).* (Aircraft Production, Vol. 5, No. 58, Aug., 1942, p. 384.)
784	14570	G.B.	...	*Improved Drill Guard.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 231.)
785	14609	Germany	...	*Simple Tool for Producing Fillets of a given Radius (Junkers).* (A.T.Z., Vol. 45, No. 17, November 10, 1942, p. 481.)

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786	14667	Germany	...	*Mobile Cleaning Equipment for Machine Tools.* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 121.)
787	14681	G.B. ...	...	*Dynamic Testing Machines.* (Aircraft Engg., Vol. 15, No. 175, September, 1943, p. 273.)
788	14692	G.B. ...	...	*Gravity Die-Casting. Part II, The Rolls-Royce Mechanised Foundry.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 480-488.)
789	14727	G.B. ...	...	*Industrial X-Ray Unit.* (Jo. Scientific Insts., Vol. 20, No. 8, August, 1943, p. 135.)
790	14729	G.B. ...	...	*Discussion on "Electrical Industrial Installation."* (Institution of Electrical Engs., Pt. 2, Vol. 90, No. 16, August, 1943, pp. 267-268.)
791	14735	G.B. ...	...	*Electronic Heaters for Brazing, Soldering and Heat-Treating Operations.* (Machinery, No. 63, No. 1,613, 9/9/43, p. 287.)
792	14740	G.B. ...	...	*Tools for Producing Strip Gauze.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 293-295.)
793	14742	G.B. ...	...	*Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 296-298.)
794	14743	G.B. ...	...	*Equipment for Drilling and Tapping Electrodes for Welding.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 299-300.)
795	14746	G.B. ...	...	*A Milling Head on a Boring Mill.* (Machinery, Vol. 63, No. 1,612, 2/9/43, p. 262.)
796	14748	G.B. ...	...	*Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 267-269.)
797	14749	G.B. ...	...	*Tube in Place of Rolled Bar for Machining (Swedish Practice).* (H. Tornebohm, Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 271-272.)
798	14750	G.B. ...	...	*Device to Damp Vibration and Shock in Machine Operation.* (Machinery, Vol. 63, No. 1,612, 2/9/43, p. 272.)
799	14829	U.S.A.	...	*Filing Machines and Methods.* (J. E. Hyler, Machinist, Vol. 87, No. 8, June 12, 1943, p. 134.)
				Scrap Salvage.
800	14376	U.S.A.	...	*Borings and Turnings Boost Scrap Metal Tonnage.* (W. C. Hirsch, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 17-18, 136.)
801	14684	G.B. ...	...	*Rivet Sorting—Useful Equipment for Sorting and Salvage.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 463.)
802	14741	G.B. ...	...	*Salvaging High Speed Cutters.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 295.)
803	14744	G.B. ...	...	*Salvage of Porous Castings.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 300.)
804	14791	G.B. ...	...	*Reclamation of Non-Ferrous Scrap Metals.* (A. B. Sidey, Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, pp. 194-197.)
				Workers' Welfare.
805	13175	G.B. ...	...	*Fire Danger from Light Alloy Swarf.* (R. Twelvetrees, Machinery, Vol. 63, No. 1,606, 22/7/43, p. 89.)

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806	14171	U.S.A. ...	*Health Aspects of Welding.* (Metal Progress, Vol. 44, No. 2, August, 1943, pp. 253, 290.)
807	14210	G.B.	*Employment of Handicapped Workers in Ford Factory.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, p. 234.)
808	14500	G.B.	*Fatigue Following Highly Skilled Work (Abstract).* (F. C. Bartlett, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 329-330.)
809	14580	G.B.	*Fire Hazards of Welding Equipment.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, p. 230.)
810	14834	G.B.	*Welfare Equipment for the New Factory.* (J. V. Brittain, Mechanical World, Vol. 114, No. 2,958, September 10, 1943, pp. 296-297.)

TRANSPORT.

Army Vehicles, including Tanks.

811	14377	U.S.A. ...	*Canadian-Built Military Vehicles.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 19.)
812	14523	U.S.A. ...	*Field Modifications of Ordnance Vehicles.* (H. O. Mathews, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 22-24, 39.)
813	14593	U.S.A. ...	*Motorisation of the U.S. Army.* (A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 618-619.)
814	14608	Germany ...	*Mobile Repair Units Attached to the N.S.K.K. (Mechanised Transport).* (A.T.Z., Vol. 45, No. 17, September 10, 1942, pp. 480-481.)
815	15045	U.S.A. ...	*Constructional Details of the Karrier (Humber Mark III) Armoured Reconnaissance Car.* (M. W. Bourdon, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 19, 91.)
816	14972	U.S.A. ...	*The Army's 2½-Ton Amphibious Tank (Photos).* (Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, p. 336.)
817	15100	U.S.A. ...	*S.A.E. Test Method to Disclose Climb Power of Army Trucks.* (Journal of the S.A.E., Vol. 51, No. 9, September, 1943, p. 16.)

Trailers and Lorries.

818	14587	Germany ...	*Standardised Loading for Transport Vehicle.* (W. Vorwig, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 526-529.)
819	14627	Germany ...	*Cross-Country Characteristics of Normal Motor Vehicles.* (E. A. Wedemeyer, A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 554-558.)
820	15229	G.B.	*Back Axle Drive or All Wheel Drive for Heavy Lorry with Trailer.* (From A.T.Z., Vol. 45, No. 13, July, 1942, pp. 360-366.) (F. Strohhacker, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 216-220.)

Brakes and Tyres.

821	14550	G.B.	*List of Selected References on Brakes and Brake Linings.* (R.T.P.3 Bibliographies, No. 86, Aug., 1943.)

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822	14597	Germany ...	*Errata to "Lammellar Brakes," pp.* 501-503. (A.T.Z., Vol. 45, No. 22, November 25, 1942, p. 617.)
823	14612	Germany ...	*Lammellar (Disc) Brake for Transport Vehicles.* (H. Klane, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 501-503.)
824	14622	Germany ...	*Errata to Article on Tyres and Tyre Pressures* (*p.* 358). (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 553.)

Motor Cars.

825	14186	U.S.A. ...	*The Future Automobile.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 71, 132.)
826	14590	Germany ...	*Standardised Terms for Motor Car Components—IV (Gears).* (H. Hartel, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 532-535.)
827	14593	Germany ...	*Nomograph for the Design of Car Springs.* (W. Schmidt, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 603-609.)
828	14610	Germany ...	*The Natural Oscillations of a Motor Car.* (E. Marguard, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 487-495.)
829	14625	Germany ...	*Production Methods for Motor Car Gear Wheels.* (H. Wittmann, A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 548-555.)

WIRELESS AND ELECTRICITY.

General, including Television.

830	14473	G.B.	*The Diode as a Rectifier and a Detector for Weak Signals.* (J. Aharoni, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 505-521.)
831	14487	G.B.	*Radio Standards in America.* (Electrical Review, Vol. 133, No. 3,430, August 20, 1943, p. 238.)
832	14539	G.B.	*Frequency Modulation—VI.* (C. Tibbs, Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 168-171.)
833	14546	G.B.	*Television After the War—The Case of Multiple Interlacing.* (P. Nagy, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 164-165.)
834	14724	G.B.	*A Medium and Long-Wave Aerial System for a Radio Laboratory.* (T. B. Rymer, Scientific Inst., Vol. 20, No. 8, August, 1943, pp. 132-133.)
835	14851	U.S.A. ...	*Analysis of Rectifier Operation.* (O. H. Schade, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 341-361.)
836	14854	U.S.A. ...	*Wartime Radio Production.* (R. C. Ellis, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 379-380.)
837	14855	U.S.A. ...	*Radio Standards Go to War.* (H. P. Westman, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 381-384.)

Aircraft and Army Radio.

838	14248	U.S.A. ...	*Radio Noise Filters for Use on Aircraft Electrical Systems.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 48.)

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839	14347	U.S.A. ...	*Instrument Approach by Radio Direction Finder (Part II).* (C. E. McIntosh, Aviation, Vol. 42, No. 6, June, 1943, pp. 206-209, 320.)
840	14432	U.S.A. ...	*New Radio Noise Filters.* (Flying, Vol. 33, No. 2, August, 1943, p. 144.)
841	14433	U.S.A. ...	*Bendix Emergency Radio Equipment.* (Flying, Vol. 33, No. 2, August, 1943, p. 144.)
842	14548	Germany ...	*Radio Beacons for Navigation (French Patent No. 865,702).* (W. Pfister, Flughafen, Vol. 11, No. 4, May, 1943, p. 17.)
843	14540	G.B.	*British Army Radio.* (Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 140-141.)
844	14651	Germany ...	*Rhombus Antennas.* (J. Grosskopf, A.T.Z., Vol. 64, Nos. 31-32, 12/8/43, pp. 415-422.)
845	14665	Germany ...	*Remote Control of Aircraft Models by Means of Radio.* (F. Tröges, Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 119.)
846	14852	U.S.A. ...	*Radiation from Vee Antennas.* (C. W. Harrison, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 362-364.)
847	15261	U.S.A. ...	*Determination of Directional Characteristics of Aircraft Antennas.* (E. Lovick, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 259-260.)
			Short and Ultra-Short Waves.
848	14542	G.B.	*Skip Distance in Short-Wave Transmission.* (T. W. Bennington, Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 160-163.)
849	14654	Germany ...	*Sensitive Current and Voltage Recorder (for Ultra-Short Waves).* (W. Frings, A.T.Z., Vol. 64, Nos. 31-32, 12/8/43, p. 431.)
850	14849	U.S.A. ...	*Beyond the Ultra-Short Waves (Historical Survey and Present Position of Wireless Technique Beyond 300 Megacycles, Wavelength 1 m.).* (G. C. Southworth, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 319-330.)
851	14850	U.S.A. ...	*Tubes for High-Power Short-Wave Broadcast Stations—Their Characteristics and Use.* (G. Chevigny, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 331-340.)
			Electrical Problems.
852	14643	G.B.	*Dust Cored Coils—Part II. Analysis of Losses.* (V. G. Welsby, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 149-153.)
853	14645	G.B.	*Matrix Algebra—Solution of Electric Network Problems.* (J. C. Simmonds, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 160-161.)
854	14853	U.S.A. ...	*A General Reactance Theorem for Electrical, Mechanical, and Acoustical Systems.* (Dah-You Maa, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 365-371.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Dielectrics.
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856	14540	G.B.	...	*Waves in Dielectric Materials.* (M. Johnson, Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 178-181.)
				X and Cosmic Rays.
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858	14280	G.B.	...	*Penetrating Non-ionizing Cosmic Rays.* (L. Janossy and G. D. Rochester, Proceedings of the Royal Society, Vol. 181, No. 987, July 28, 1943, pp. 399-408.)
859	14575	G.B.	...	*Cosmic Static Investigations.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 234.)
860	14652	Germany	...	*Investigation of X-Ray Emission by the Slowing Up of Electrons in the Electric Field of the Atomic Core.* (A.T.Z., Vol. 64, No. 31-32, 12/8/43, p. 422.)
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861	14136	G.B.	...	*Design of Simple Ohmmeters. I, General Principles and Details of a Meter for High Resistances.* (F. L. Hogg, Wireless World, Vol. 49, No. 8, August, 1943, pp. 224-227.)
862	14398	G.B.	...	*Dehydration of Food by Radio-Frequency Energy.* (V. W. Sherman, Engineer, Vol. 176, No. 4,574, September 17, 1943, pp. 221-222.)
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				SOUND, LIGHT AND HEAT.
				Sound Waves and Measurement.
864	14209	G.B.	...	*The Measurement of Loudness (Mitigation of Plant Noise).* (G. W. Stubbings, Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 231-234.)
865	14576	G.B.	...	*Sound Attenuation in Air Ducts.* (B. G. Churcher and A. J. King, Engineering, Vol. 156, No. 4,053, September 17th, 1943, pp. 221-222.)
866	14644	G.B.	...	*Producing and Detecting Supersonic Sound Waves.* (W. P. Bollinger, Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 158.)
				Light Rays, Flame Spectra, etc.
867	14506	G.B.	...	*Flame Spectra in the Photographic Infra-Red.* (A. G. Gaydon, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 197-209.)

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869	14520	G.B.	...	*Illumination Measurements.* (C. Mogford, Electrical Review, Vol. 133, No. 3,426, July 23, 1943, pp. 103-106.)
870	14642	G.B.	...	*Fluorescent Lamps—A Survey of Old and Recent Development.* (R. Neumann, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 154-157.)
871	15042	G.B.	...	*Short Wave-Length Limit of the Continuous X-Ray Spectrum and Determinations of h/e.* (P. Ohlin, Nature, Vol. 152, No. 3,855, September 18, 1943, pp. 329-330.)
872	15043	G.B.	...	*Variations of Ultra-Violet and Daylight Rays.* (J. R. Ashworth, Nature, Vol. 152, No. 3,855, September 18, 1943, p. 330.)
873	15277	U.S.A.	...	*Range of Vision from an Aircraft (Taking into Account the Atmospheric Refraction).* (G. H. Draper and R. F. Haupt, Aero Digest, Vol. 43, No. 1, July, 1943, p. 473.)
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874	14231	U.S.A.	...	*Studies of Heat Transmission Through Boiler Tubing at Pressures from 500 to 3,300 lbs.* (W. F. Davidson and others, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 553-591.)
875	14232	U.S.A.	...	*Influence of Non-Uniform Development of Heat upon the Temperature Distribution in Electrical Coils and Similar Heat Sources of Simple Form.* (M. Jakob, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 593-605.)
876	14233	U.S.A.	...	*The Numerical Solution of Heat Conduction Problems.* (H. W. Emmons, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 607-615.)
877	14374	G.B.	...	*Temperature of Flame Gases.* (W. T. David, Nature, Vol. 152, No. 3,853, September 4, 1943, p. 278.)
878	14502	G.B.	...	*Freezing Points of Solutions of Typical Colloidal Electrolytes: Soaps, Sulphonates, Sulphates and Bile Salt.* (S. A. Johnston and J. W. McBain, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 119-133.)
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882	14521	G.B. ...	...	*Space Heating.* (Electrical Review, Vol. 135, No. 3,426, July 23, 1943, p. 110.)
883	14653	Germany	...	*New Facts Concerning the Heating and Destruction of Stratified Insulators.* (F. Liebscher, A.T.Z., Vol. 64, No. 31-32, 12/8/43, pp. 423-427.)
884	14784	U.S.A.	...	*Plastic Heating by Oil.* (J. Le Maire, Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 139-141.)
885	14819	G.B. ...	...	*Temperature Gradients in Gaseous Explosions.* (Nature, Vol. 152, No. 3,854, 11/9/43, pp. 303-304.)
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(PHOTOGRAPHIC RECONNAISSANCE, HIGH SPEED CAMERAS, Etc.).

888	14327	G.B. ...	...	*Photographic Reconnaissance.* (Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 286-288.)
889	14362	G.B. ...	...	*Substratosphere Mosquito for Photographic Reconnaissance (Photo).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 286.)
890	14367	G.B. ...	...	*Exposing Enemy Secrets by Photographic Reconnaissance.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, pp. 302-304.)
891	14373	G.B. ...	...	*Photographic Analysis of Motion.* (E. R. Davies, Nature, Vol. 152, No. 3,853, September 4, 1943, pp. 261-264.)
892	14820	G.B. ...	...	*Structure of Nickel Oxide by X-Ray Powder Photographic Methods.* (H. P. Rooksby, Nature, Vol. 152, No. 3,854, 11/9/43, p. 304.)
893	15009	U.S.A.	...	*Motion Analysis by Means of High Speed Photography.* (H. D. Jackes, Preprint of the Society of Automotive Engineers, Sept. 30-Oct. 2, 1943, pp. 1-10.)
894	15044	G.B. ...	...	*A Giant Camera.* (Nature, Vol. 152, No. 3,855, September 18, 1943, pp. 335-336.)
895	15141	U.S.A.	...	*High Speed Cameras to Photograph the Detonation Waves of Explosions.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 124.)
896	15228	Germany	...	*The Zeiss-Ikon Slow-Motion Camera.* (Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, pp. 24-25.) (Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 215-216.)

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			METEOROLOGY
			(THUNDERSTORMS, CLOUDS AND DEW, THE IONOSPHERE).
897	14245	U.S.A. ...	*Thunderstorm Characteristics and Flight Procedures (C.A.B. Safety Bulletin).* (J. A. Browne, American Aviation, Vol. 7, No. 5, August 1, 1943, p. 30.)
898	14541	G.B. ...	*Exploring the Ionosphere.* (Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 182-183.)
899	14582	G.B. ...	*The Protection of Buildings Against Lightning.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, p. 232.)
900	14663	Germany ...	*German Meteorological Office Equipment (Photographs).* (Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 116-117.)
901	15337	G.B. ...	*Preliminary Note on Condensation in the Form of Clouds and Dew.* (J. W. Archbold, Philosophical Magazine, Vol. 34, No. 236, Sept., 1943, pp. 632-642.)
			PHYSIOLOGY AND AVIATION MEDICINE
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902	14222	U.S.A. ...	*Symposium of Papers on the Production of Synthetic Anti-Malarial Drugs.* 1. Malaria—Public Health and Economic Aspects. 2. Anti-Malarial Screening Tests. 3. Chemistry and Development of Atabrine and Plasmochin. 4. The Economic Impact of the Sulfonamides on the Drug Industry. (Various Authors, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, July 25, 1943, pp. 1147-1162.)
903	14257	U.S.A. ...	*Aeronca's New Light Ambulance Aircraft.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 62.)
904	14375	U.S.A. ...	*Aerobiology (Publication of the American Association for the Advancement of Science).* (Edited by F. R. Moulton, Nature, Vol. 152, No. 3,853, September 4, 1943, pp. 258-259.)
905	14416	U.S.A. ...	*Keeping Pilots Fit—the Rôle of the Flight Surgeon.* (J. S. Douglas, Flying, Vol. 33, No. 2, August, 1943, pp. 75, 164-165.)
906	14442	U.S.A. ...	*Medical Research in Some Aspects of Aircraft Design.* (W. E. Russell, J. R. Erwin and H. R. Dettaven, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 227-231.)
907	14785	U.S.A. ...	*The Rôle of the Flight Surgeon.* (D. N. W. Grant, Air Services, Vol. 28, No. 7, July, 1943, pp. 13-14.)
908	14875	U.S.A. ...	*Chemical Side of Chemotherapy (Production of Sulfa Drugs).* (E. H. Northey, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 829-836.)

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909	14963	U.S.A. ...	*Desiccation of Human Blood Plasma (Discussion).* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 676-677.)
910	15139	U.S.A. ...	*Pencillin—New Chemotherapeutic Agent.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 117.)
911	15178	Germany ...	*Effects of Acceleration on Pilots (Experiments Carried Out with a Specially Equipped Ju. 87).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
912	15293	U.S.A. ...	*Erythrocytes and Hæmoglobin Values in Acclimatisation Produced by Discontinuous Anoxia.* (J. Aviation Med., Sept., 1942, Vol. 13, No. 3, pp. 170-176.) (J. C. Stickney and E. J. Van Liere, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, pp. 52-53.)
913	15294	U.S.A. ...	*Studies on the Effects of Adding Carbon Dioxide to Oxygen-Enriched Atmospheres in Low Pressure Chambers. II, The Oxygen and Carbon Dioxide Tensions of Cerebral Blood.* (J. Aviation Med., Vol. 13, No. 1 pp. 177-181, Sept., 1942.) (H. Himwich and others, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, p. 53.)
914	15295	U.S.A. ...	*The Influence of Certain Anti-Malarials and Related Agents on Lethal Effects of Anoxia.* (J. Aviation Med., Vol. 13, No. 3, pp. 182-189, Sept., 1942.) (Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, p. 53.)
915	15296	Italy ...	... *The Present Position of Mosso's Acapnia Theory.* (Abstract in Luftfahrtmed., 1942, and April, 1943, Vol. 6, p. 257.) (R. Margaria, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, pp. 53-54.)

MATHEMATICS AND PHYSICS.

916	14238	U.S.A. ...	*A Brief Account of Modern Kinematics (with Discussion).* (A. E. R. de Jonge, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 663-683.)
917	14237	U.S.A. ...	*New Five-Bar and Six-Bar Linkages in Three Dimensions (with Discussion).* (M. Goldberg, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 649-661.)
918	14281	G.B.	*Some Remarks on the Statistics of Binary Systems.* (G. H. Wannier, Proceedings of the Royal Society, Vol. 181, No. 987, July 28, 1943, pp. 409-411.)
919	14282	G.B.	*On the Statistics of Binary Systems.* (K. Fuchs, Proceedings of the Royal Society, Vol. 181, No. 987, July 28, 1943, pp. 411-415.)
920	14475	G.B.	*Inversion Formulæ for the Laplace Transformation.* (A. Erdekyi, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 533-537.)
921	14477	G.B.	*Graphical Differentiation and Integration.* (C. W. Hansel, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 565-574.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
922	14496	G.B.	... ...	*Newton and the Science of His Age.* (E. N. Da C. Andrade, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 227-243.)
923	14497	G.B.	... ...	*Newton as an Experimenter.* (Lord Rayleigh, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 244-250.)
924	14498	G.B.	... ...	*Newton and the Science of To-day.* (Sir James Jeans, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 251-262.)
925	14501	G.B.	... ...	*The Ultimate Shape of Pebbles, Natural and Artificial.* (Lord Rayleigh, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 107-118.)
926	14818	G.B.	... ...	*Numerical Fourier Analysis to Twenty-Nine Harmonics.* (M. A. S. Ross, Nature, Vol. 152, No. 3,854, 11/9/43, pp. 702-703.)
927	14821	G.B.	... ...	*Proposals for New Basic Physical Postulates.* (H. T. Townsend, Nature, Vol. 152, No. 3,854, 11/9/43, p. 308.)

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(No. 119. January, 1944)

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Notices and abstracts from the Scientific and Technical Press are prepared primarily for the information of Scientific and Technical Staffs. Particular attention is paid to the work carried out in foreign countries, on the assumption that the more accessible British work (for example that published by the Aeronautical Research Committee) is already known to these Staffs.

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NOTE.—As far as possible, the country of origin quoted in the items refers to the original source.

Device for Cutting Barrage Balloon Cables. (Inter. Avia., Nos. 891-892, Oct. 30th, 1943, p. 17.) (119/1 Great Britain.)

The device is composed of a steel head projecting from the wing with openings measuring roughly four-fifths of an inch on one or both sides; the balloon cable slides into these " gates " upon coming into contact with the wing leading edge. In the gates are set two triggers of which at least one is actuated by the cable and causes a cartridge to be fired. The explosive charge drives a chisel against the balloon cable which is severed immediately. The British four-engined long-range bombers carry sixteen such devices along their wing leading edge. Each is the " size of a brick " and weighs several pounds.

Caterpillar Track Landing Gear. (Inter. Avia., Nos. 891-892, Oct. 30th, 1943, p. 15.) (119/2 U.S.A.)

This gear was developed by the Dowty Equipment Corp. in collaboration with the Firestone Tyre and Rubber Co., of Akron, O., and the Material Command of the U.S. Army Air Forces *for the Douglas A-20 "Boston" ("Havoc") twin-engined light bomber*: Each landing gear half has two large bogie rollers to guide the track belt which on the inside is provided with longitudinal grooves and with a wire beading on its edges, as well as a smaller tension roller and two equally small supporting rollers; all these rollers are made from light metal

and have grooved surfaces to engage the longitudinal grooves of the track belt. The two supporting rollers are mounted on a supporting frame which is sprung against the longitudinal members of the caterpillar track and obviously takes a large portion of the weight; they are suspended, like the tension roller ahead of them and the rear bogie roller, from the longitudinal members by means of a lever system; by this means the load that is placed on them assists in tightening the track belt; when the landing gear is unloaded, this task is assumed by a spring acting on the axle of the tension roller. The two longitudinal members are fixed to the lower ends of a lever pair which turns about an axle set in the lower end of the undercarriage strut and whose upper end is guided by a member articulated to the fixed upper extreme of the landing gear strut (inside of the engine cowling); furthermore, a strut mounted more forwards in the engine cowling determines the trajectory of the lower landing gear strut end. The dimensions of the guiding member, the strut and the double lever are selected in a way that the longitudinal track supporting members move both backwards and upwards when the shock strut of the landing gear is shortened, a principle of motion which Dowty strongly recommends also for conventional landing gears, notably for nose-wheel landing gears, and which he achieves by the employment of rocking levers (" levered suspension "). During the taxying and landing trials carried out with the Douglas A-20 fitted with the caterpillar track landing gear, several hundred landings were carried out at speeds of up to 120 m.p.h., and obstacles measuring up to eight inches were negotiated at high taxying speeds; as the load on the surface contact area amounted to only between one-eighth and one-sixth of the load on a conventional landing gear, it did not sink into sandy or marshy ground even when the nose wheel dug itself into the ground. The designer believes that the most promising fields of application of such caterpillar track landing gears are large aircraft weighing 100,000 lb. and over; as landing runways with hard surfaces will be available for such aircraft, their undercarriages will be designed to take considerably higher loads than those that were applied in the experimental types. Retractable designs of this kind are apparently not available for the time being, but do not seem to offer any difficulties of a fundamental nature.

Rate of Climb Calculations. (G. Otten, J. Aeron. Sc., Vol. 10, No. 2, Feb., 1943, pp. 48-50, 57.) (119/3 U.S.A.)

In rate of climb calculations it has been usual to neglect acceleration along the flight path and assume the lift to be equal to the gross weight. The errors due to the two assumptions are of opposite sign and could be safely neglected in the past. This is however no longer the case for present day high performance fighters.

Suppose the aircraft is climbing at an angle θ. Equating the available thrust with the drag and inertia forces, we have

$$\frac{A\eta}{V} = D + W \sin\theta + \frac{W}{g}\dot{V}$$

where A = h.p. of engine.
η = efficiency of propeller.
W = gross weight.
V = speed along flight path.
D = drag.

Substituting lift and drag coefficients for the complete aircraft under actual climb conditions, this reduces to

$$C_L^2 + C_D^2 - 2C_D\left[\frac{A\eta}{Vqf} - \left(\frac{W}{gqf}\right)\dot{V}\right] + \left[\frac{A\eta}{Vqf} - \left(\frac{W}{gqf}\right)\dot{V}\right]^2 - \frac{W^2}{q^2f^2} = 0$$

where f = wing area,
i.e., $C_L qf = L$, etc. . . . . (1)

Plotted in the C_L/C_D plane, the above represents a circle of radius W/qf and centre on the C_D axis at a distance $A\eta/Vqf-(W/gqf)V$ from the origin.

If V and V' are chosen correctly, this circle will intersect the polar diagram of the complete aircraft at a point for which the corresponding C_L and C_D values satisfy equation (1) above.

In the general case, neither V nor V' are known. The procedure is to neglect V' in the first approximation and assume V to correspond to the conditions of minimum horse-power, *i.e.*,

$$qC_Lf=W\cos\theta$$

$$\tan\theta=\frac{A\eta}{Vqf}\frac{C_L}{C_D}-\frac{C_D}{C_L}$$

C_D and C_L being chosen so that $C_DC_L^{3/2}$ is a minimum. By repeating the calculation at various altitudes, V' can be found and thus $A\eta/Vqf-W/gqf$ determined. This gives the corrected position for the centre of the circle corresponding to equation (1).

The intersection of this circle with the aircraft polar diagram gives the corresponding value of C_D. The rate of climb then follows from the expressions

$$\frac{A\eta}{Vqf}\left(\frac{W}{gqf}\right)V'-C_D=C_c$$

$$C_cqfV=CW$$

when C=rate of climb in feet/sec.

Space Limitations and Optimum Conditions in Aircraft Spring Design. (R. H. Carter, J. Aero. Sc., Vol. 10, No. 2, Feb., 1943, pp. 51-57.) (119/4 U.S.A.)

The formulæ usually used in spring design are

$$P_{max}=\pi d^3S/8K_1D \quad . \quad . \quad . \quad (1)$$
$$P_f=fGd^4/8nD^3 \quad . \quad . \quad . \quad (2)$$

} Tension or compression springs.

$$M_{max}=\frac{Sd^3}{10.20\ K} \quad . \quad . \quad . \quad (3)$$
$$M_\theta=\frac{\theta}{360}\frac{Ed^4}{11.25\ Dn} \quad . \quad . \quad . \quad (4)$$

} Torsion springs.

where P=end load (lb.).
M=applied couple (lb. in.).
f=extension or compression.
d=diameter of wire.
D=mean diameter of coils.
D_o=outside diameter of coils.
D_i=ditto inside diameter.
S=stress in wire.
G=torsion modulus.
θ=deflection in degrees (torsion).
E=Young's modulus.

$$K_1=\text{Wahl factor for tension or compression}=1+.015\left(\frac{d}{D}\right)\left(\frac{91\ D-41\ d}{D-d}\right)$$

$$K=\text{Wahl factor for torsion}=[1+(d/5\ D_i)]^3.$$

Optimum conditions are ensured by equating (1) and (2) and (3) and (4) respectively and solving for the various parameters, after making simplifying assumptions regarding K, K_1, D_i/d and D_o/d (D_i and D_o are the inside and outside diameter of the coils respectively). Using these expressions, the relationship between space limitations, maximum load and wire size can be obtained immediately for a given allowable stress. A number of alignment charts are given to facilitate the calculation.

In conclusion, the problem of weight rather than space limitation in spring design is discussed. In many cases the optimum design with respect to weight can be determined. This is illustrated in a specific example of an extension spring carrying a load P_2 at length l_2.

Required: The lowest load P_1 at length l_1 ($l_1 > l_2$) consistent with a d and D combination giving lowest-spring weight.

The author obtains the following relationship:—

$$d^2 = (C/A)(D/d)[1 + .7\,d/D] \quad . \quad . \quad . \quad . \quad (5)$$

where $C = 16\,P_2(l_1 - e)$.

$A = (\pi S/K_1)(l_2 - e)$.

e = end connection length.

K_1 = Wahl's factor (given above).

Since D_a/d as a function of $(l_1 - l_2)/(l_2 - e)$ is available from the author's previous work on optimum design (maximum permissible S), equation (5) can be solved for d and P_1 determined.

Stress Peaks in Perforated Metal Plates and Strips. (A. Hutter, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 322-335.) (11 p. Germany.)

The author considers two cases:—

(1) Infinite plate provided with a row of holes.

(2) Infinite strip (finite width) provided with a single central hole.

(1) Infinite plate under uniform two dimensional tensile stress $2c$ at ↖ or monoaxial stress perpendicular to the holes.

Let

$2a$ = diameter of hole.

$2l$ = spacing.

$2b = .2\,(l - a)$ = length of web between holes.

σ_{max} = maximum tangential stress on edge of hole.

σ_d = mean stress in web between holes.

If a/l is small, the Airy stress function can be developed in series and σ_{max} determined.

For either kind of loading, the mean stress in the web between the holes is

$$\sigma_d = 2c\left(\frac{1}{1 - a/l}\right) = 2c\left(\frac{l}{b}\right)$$

Retaining terms up to the fifth power in a/l, the following results are obtained:—

$$\frac{\sigma_{max}}{\sigma_d} = 2\left(1 - \frac{a}{l}\right)\left[1 + \frac{2}{3}\left(\frac{\pi}{2}\cdot\frac{a}{l}\right)^2 - \left(\frac{4}{45}\right)\left(\frac{\pi}{2}\cdot\frac{a}{l}\right)^4 + \ldots\right]$$

(equal tension in all directions, $2c$ at ↖).

$$\frac{\sigma_{max}}{\sigma_d} = 3\left(1 - \frac{a}{l}\right)\left[1 + \left(\frac{2}{9}\right)\left(\frac{\pi}{2}\cdot\frac{a}{l}\right)^4 + \ldots\right]$$

(tension perpendicular to holes, $2c$ at ↖).

For the infinitely small hole, the stress in the rim of the hole is thus either double or treble the uniform stress at infinity, depending on the method of loading. This type of series solution breaks down for large values of a/l.

In this case it is more profitable to expand in terms of b/l. Unfortunately the Airy stress function in its general form does not lend itself to this purpose. Making use, however, of alternative methods of solution already obtained by Neuber ("necked" hyperbolic strip, imperforated) and Poschl (infinite plate with two holes close together), the required stress ratio becomes

$$\frac{\sigma_{max}}{\sigma_d} = 1 + \frac{2}{3}\left(\frac{b}{l}\right) + \ldots$$

correct to first order terms in (b/l).

This solution holds both for monoaxial and two dimensional stress $2c$ at ↖ and the inclination of the tangent of the σ_{max}/σ_d curve at $(b/l)=0$ is thus known, although the curvature at finite values of (b/l) is uncertain. Making use of the Airy solution for (a/l) between 0 and .2 and the tangent inclination at $(a/l)=1$, the probable course of σ_{max}/σ_d can be estimated over the full range.

The following values are obtained:—

	σ_{max}/σ_d.	
a/l	Two dimensional stress.	Monoaxial stress.
0	2.0	3.0
.2	1.7	2.4
.4	1.48	1.95
.6	1.30	1.50
.8	1.15	1.20
1.0	1.0	1.0

Infinite strip with a single hole (tension in direction of strip $=2c$ at ↖). For small values of a/l ($2l$ = width of strip in this case) the Airy stress function can be expanded in series form.

The ratio of maximum tangential stress at hole to mean stress in lateral webs becomes (a/l between 0 and .1)

$$\frac{\sigma_{max}}{\sigma_d}=3-3\left(\frac{a}{l}\right)+4.38\left(\frac{a}{l}\right)^2-\ldots$$

For large values of a/l (very narrow webs) an approximate solution based on the stress distribution existing in a semi-infinite plane with a hole near one edge can be obtained.

The required stress ratio becomes:—

$$\frac{\sigma_{max}}{\sigma_d}=2+\frac{2}{3}\left(\frac{b}{l}\right)+\left(\frac{28}{45}\right)\left(\frac{b}{l}\right)^2+\ldots$$

where $b=l-a$.

This holds over the range $a/b=.9$ to 1.0.

Knowing the shape of the stress ratio curve, both for small and large values of a/l, the curve can be estimated over the whole range.

The following results are obtained:—

a/l	$\sigma_{max}/\sigma d$
0	3.0
.2	2.6
.4	2.4
.6	2.27
.8	2.15
1.0	2.0

It is interesting to note that for small values of a/l, σ_{max}/σ_d for monoaxial stress is the same for the infinite plate with a row of holes or the infinitely long strip with a single hole.

For large values of (a/l), however, the stress ratio differs markedly for the plate (holes close together) and the strip (single central hole reaching almost the edge). In the former case, the mean web stress is equal to the maximum hole stress, whilst in the case of the strip it only reaches two-thirds of this value.

Tool Life Tests. (O. W. Boston, A.S.M.E. Annual Meeting, Nov. 29-Dec. 3, 1943, New York. (Preprint available.) (119/6 U.S.A.)

The proposed standards refer to single point cutting tools other than those of cemented carbide. Carbide tools fail or wear differently from those of steel and cast non-ferrous alloys and a separate procedure for rating them is being developed.

The single point tools considered are either of the solid or tipped type.

Tool life tests naturally depend on the material cut and the cutting fluid employed.

For a given material and fluid, the merit of the tool depends on the following factors:—

(*a*) Tool-life/cutting speed relationship.
(*b*) Surface quality produced.
(*c*) Form of chip.
(*d*) Power required.

These four factors should be determined under actual cutting conditions (light, medium or heavy cuts) and can in their turn be used to evaluate the machinability of a given material. In this connection it should be pointed out that the rating obtained will in general depend on the shape and material of the tool employed. Similarly a change in the nature of the cutting fluid or differences in structure of the material cut may affect the machinability order produced by a given tool. The types of machine tool employed, its condition, and the method of tool and work support are also of importance. Tests on tool life or machinability are thus meaningless unless a relatively large number of factors are clearly specified and controlled.

Of special importance is the shape of the tool point and all the pertinent tool angles should be specified. An example of a convenient code for this purpose is the following 8, 22, 6, 6, 6, 15, 3/64, which signifies:—

8° back rake.
22° side rake.
6° end relief.
6° side relief.
6° end cutting edge angles.
15° side cutting edge angles.
3/64 nose radius (in.).

The formula connecting cutting speed and tool life between grindings for a given tool, material, feed and depth of cut is given by

$$VT^n = C$$

where V = cutting speed in ft./min.
T = tool life in minutes.
C = constant.
= cutting speed for a tool life of one minute.

Plotting log T against log V thus gives a straight line and this facilitates the representation of experimental results. The two tool life characteristics n and c are given respectively by the slope of this line and its intercept with the V axis.

For high speed tool steels, n may vary between .08 and .16, C from 40 to 200 ft. minute, depending on material being machined and depth of cut.

It is interesting to note that two steels of the same Brinell hardness may give the same values for C and n for light cuts yet differ appreciably when compared under heavy cut conditions (both dry cuts).

Thus in one particular case (material forged die steels of identical Brinell hardness 363 machined with the same high speed tool steel).

T_{60} (life at a cutting speed of 60 ft./min.) = 11.5 minutes for steel A and 25 minutes for steel B for a depth of cut of .1 in., whilst T_{150} = 10 minutes for both steels for a depth of cut of .0125 in., the feed being .0125 in both cases.

The Theory of Two-Dimensional Gas Waves of Large Amplitude. (H. Pfriem, Z.V.D.I., Vol. 86, Nos. 27-28, July 11, 1942, p. 436.) (Translation of original German Digest.) (119/7 Germany.)

Gas waves of large amplitude differ from acoustic waves principally by the fact that their velocity of propagation is different in different parts of the wave;

for which reason the form of the wave is continually changing. The theory of steady two-dimensional waves in a perfect gas can be considerably simplified by neglecting the damping and introducing the velocity of sound as a factor in the equation of state. This enables the deformation of a travelling wave to be determined by the application of a simple graphical/mechanical method (1). The deformation of a wave always proceeds in the manner that the back is progressively flattened, while the front becomes steeper. This eventually causes abrupt state changes in the wave front, the so-called compression shocks. In particular cases of a simple nature, this transformation of steady wave fronts into compression shocks is easily analysed mathematically (2). The laws governing the development of continuous travelling waves in gases, and of compression shocks, can be used, for example, to calculate the upper limit of technically feasible projectile velocities (3). In combustible gas mixtures, a special type of compression shock can occur, the so-called "detonation wave," in which the steep wave-front is also the point of combustion of the gaseous mixture. In the case of normal detonation waves, the time-variation of the wave-form can be easily followed also behind the steep front, and the whole form of the wave determined (4). For technical applications, the laws of reflection (5) of pressure waves are important. Their derivation is possible also for continuous gas waves, in a clear and elementary form, if the time-variation of the gas states in front of the reflecting wall surface is negligible. Precise analytical determination of the resultant state fields brought about by the superposition of meeting gas waves is only possible with the help of Euler's differential equation and the continuity condition. If the development is confined to mono-, di-, and polyatomic gases ($H = 5/3, 7/5, 9/7, \ldots$), quite general solutions of these simultaneous partial differential equations are easily produced (6). This will enable the analysis of more complex two-dimensional wave phenomena in restricted gas-filled spaces.

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The Formation of Drops at Nozzles and the Disintegration of Fluid Jets. (W. Ohnesorge, Z.V.D.I., Vol. 81, No. 16, 17/4/37, pp. 465-466.) (11p/8 Germany.)

A theoretical explanation of the disintegration of fluid jets by the action of surface vibrations with axial symmetry was given over 60 years ago by Lord Rayleigh. This author assumed potential flow and considered gravity and capillary forces only, the solution applying strictly only to the slow dripping of a liquid from the end of a tube without the formation of a jet. In this case the inertia and viscous forces can be neglected.

Viscous forces play also a very small part in the surface vibrations investigated by Rayleigh, although the inertia forces can no longer be neglected and are in fact more important than the effect of gravity.

In the general case of jet instability, however, both inertia and viscous forces play a predominant part and an exact solution of the equations of motion is no longer possible. Recourse can therefore be had only to experiment, but the author shows how such experimental results can be generalised by the introduction of non-dimensional coefficients based on the principle of mechanical similarity. For this purpose he introduces a characteristic Z defined as:—

$$Z = \frac{\eta}{\sqrt{\sigma \rho d}}$$

where η = absolute viscosity
ρ = density
σ = surface tension
d = diameter of nozzle.
} of flowing medium.

For a constant value of Z, the stability of the jet is only a function of the Reynolds number $Re = vd\rho/\eta$ where v = velocity of flow.

The experiments show that above a certain well-defined Re number (Re_1), the jet will completely atomise at the nozzle. Below this Reynolds number, the jet will disintegrate by means of helicoidal vibrations which change into Rayleigh vibrations at a second well defined Reynolds number Re_2 (see table below).

Z	Re	
	1	2
10	30	8
1	210	50
10^{-1}	1,500	300
10^{-2}	10,000	2,000
10^{-3}	70,000	11,000

Thus for $Z = 1$, atomisation at nozzle requires $Re > 210$ and between $Re = 210$ and 50, the jet breaks up by helicoidal vibrations. When plotting Z and Re on a log basis, both Re_1 and Re_2 lie on parallel straight lines containing a relatively narrow region over which helicoidal vibrations are possible. To the left of Re_2 the surface only exhibit vibrations with axial symmetry of the Rayleigh type.

It is interesting to note that the onset of atomisation at Re_2 is quite sudden. Just below Re_2, the jet close up to the nozzle has still a smooth surface with axially symmetric swellings which change into helicoidal lateral vibrations of increasing amplitude as the distance from the nozzle increases. Subsidiary drops are formed and the jet finally breaks up completely. As Re increases to the critical value Re_2, the zone of complete disintegration travels upwards towards the nozzle.

The phenomena were recorded on a high speed cine camera (200 to 12,000 frames a second). For specimen picture, see Z.A.M.M., Vol. 16, 1936, p. 357.

Three Dimensional Wing Flutter Analysis. (A. H. Flax, J. Aeron. Sc., Vol. 10, No. 2, Feb., 1943, pp. 41-47.) (119/9 U.S.A.)

It is the aim of the author to develop a three dimensional wing flutter analysis (three degrees of freedom) using methods familiar to the average engineer.

Unfortunately, no complete solution of the problem of the vibrating wing of finite aspect ratio is as yet available.

Hence the aerodynamic force coefficients must be obtained by strip integration of two-dimensional coefficients, it being assumed that the flow at each spanwise element of the wing is independent of the flow at other points on the wing. This necessarily entails neglecting the induced velocities caused by free and trailing vortices all along the span.

The author is of the opinion that this assumption is not likely to produce any serious error in the case of wings of normal aspect ratio. In the case of tail surfaces, however, empirical correction may have to be applied to the local aerodynamic force coefficients to allow for the small aspect ratio.

The author further simplifies the problem by assuming that the fundamental modes of bending and torsion (obtained either from ground tests or calculation) also correspond to the displacement curves in the flutter motion, the number of degrees of freedom thus being limited to three.

In many preliminary investigations, the complete three-dimensional analysis described by the author is not justified, the available data being insufficient. In

the past empirical weighting methods have been applied to two-dimensional analysis to account for three-dimensional effects. The usual procedure is to express the equivalent mass in the form

$$\overline{M} = \frac{(\int_0^l Mhdy)}{(\int_0^l hdy)}$$

and the equivalent radius of gyration as

$$\overline{\rho}^2 = \frac{(\int_0^l \rho^2 \alpha dy)}{(\int_0^l \alpha dy)}$$

where h = bending displacement of elastic axis.
α = torsional twist about elastic axis.

Comparison with the more accurate results in this paper shows that the above method generally over-emphasises inboard parameter and may lead to appreciable errors. It appears that the main value of the paper lies in the aid it will give for the intelligent choice of such two-dimensional parameter, depending on the nature of the problem. In conclusion, the author gives approximate expressions for the correction of coupled frequencies obtained in still air vibration tests to the " uncoupled " frequencies during flutter. The effect of the apparent inertia of the air is also included. (Eleven references.)

Dynamics of Constant Speed Propellers. (H. K. Weiss, J. Aeron. Sc., Vol. 10, No. 2, Feb., 1943, pp. 58-67, 70.) (1 1/2 U.S.A.)

Constant propeller speed under varying conditions of flight is usually obtained by varying the blade angle according to some function of the speed error (r.p.m.). The control consists of some device which measures this error and its integral or derivatives and a servo mechanism which moves the blades in accordance.

If N = set propeller speed (r.p.s.).
n = departure from set speed (r.p.s.).
β = blade angle at N } degrees.
β_0 = change in blade angle }
V = forward speed of aircraft } m.p.h.
r = change in above }
Q_e = torque of engine (lb. ft.).
Q_p = torque of propeller (lb. ft.).
ΔQ = change in torque (positive torque tends to accelerate propeller).

$$\Delta Q_e = (\partial Q_e / \partial N)\, n + \Delta Q_0$$

where ΔQ_0 = increment due to throttle (not speed).

$$Q_p = f(N, V, \beta)$$

$$\Delta Q_p = (\partial Q_p / \partial N)\, n + (\partial Q_p / \partial \beta)\, \beta_1 + (\partial Q_p / \partial V)\, r$$

The acceleration of the propeller is given by

$$I\dot{n} = \Delta Q_e + \Delta Q_p$$

which reduces to

$$\dot{n} - Q_N n - Q_\beta \beta_1 = Q_0 + Q_v r \qquad (1)$$

where

$$Q_N = (1/2\pi I)\,[\partial Q_p / \partial N + \partial Q_e / \partial N]$$
$$Q_\beta = (1/2\pi I)\,\partial Q_p / \partial \beta$$
$$Q_v = (1/2\pi I)\,\partial Q_p / \partial V$$
$$Q_0 = (1/2\pi I)\,\Delta Q_0$$

Q_N, Q_β and Q_v can be obtained from the slope of the propeller torque curves or calculated from the conventional propeller coefficients.

In this case

$$Q_N = q_N \eta \sigma N^2$$
$$Q_\beta = q_\beta \eta \sigma N^2$$

where

$q_N = (1/2\pi)(2c_p - J\partial c_p/\partial J)$
$q_\beta = (1/2\pi)(\partial c_p/\partial \beta)$
c_p = propeller power coefficient
$\eta = (1/2\pi I)\rho_{SL} D^5$
$J = V/nD$
σ = density ratio
ρ_{SL} = standard density

Representative values of q_N, q_β and η are given for a number of standard propellers.

The propeller inertia factor η averages about 2.5 for diameter between 8 and 14 feet, but increases to ~ 4 at 18 feet.

Neither q_N nor q_β vary appreciably with J up to $J = 1.5$. The former factor, however, depends markedly on β (increasing, for example, from $-.02$ at $\beta = 20°$ to $-.08$ at $\beta = 40°$ for a certain two-bladed propeller), whilst the variation of q_β with blade angle is small (average value of q_β over the range $J = 0$ to $1.5 = -.002$).

In the practical case, β_1 in equation (1) above is subject to control. It is assumed that the processes involved between measurement of the speed error and movement of the propeller blade can be expressed in the form of linear differential equations with constant coefficients.

In the absence of lag, the response of such a linear control is therefore of the general form,

$$\beta_1 = K_1 \int n dt + K_2 n + K_3 \dot{n} + \ldots \quad (2)$$

where $K_1 = \partial \beta_1 / \partial n$
$K_2 = \partial \beta_1 / \partial \dot{n}$
$K_3 = \partial \beta_1 / \partial \ddot{n}$

Combining this with equation (1), the motion of the controlled propeller is given by

$$\ddot{n}(I - K_3 Q_\beta) - \dot{n}(Q_N + K_2 Q_\beta) - K_1 Q_\beta n = \dot{Q}_o + v\dot{Q}_v \quad (3)$$

Without solving this general equation, several conclusions can be drawn :—

(1) If $K_3 Q_\beta \to 1$, the effective inertia of the propeller is reduced.
(2) An increase of engine torque with engine speed (supercharged engine) reduces the aerodynamic damping of the system.

More detailed information on the aerodynamic damping is readily obtained in the simpler case where K_2 and K_3 are both zero and only K_1 operative (Hamilton type of control, aerodynamic damping only).

Putting

$$\zeta_o = \frac{\text{actual damping}}{\text{minimum required for aperiodic motion after disturbance}}$$

we have

$$\zeta_o^2 = -Q_N^2 / 4 K_1 Q_\beta$$

It appears that

(1) Large K_1 values (sensitive control) tends to oscillate.
(2) This tendency increases with altitude and propeller inertia.
(3) Damping also decreases with decreased forward speed for a given engine power and r.p.m.
(4) Damping increases with increased power at a given air speed and r.p.m. for constant $\partial Q_e / \partial N$.

Making use of the expression for ζ_0, the corresponding damping ratio ζ_s of the system with derivative control (equation (3)) can be shown to follow from

$$\zeta_s^2 = \zeta_0^2 (1+\delta)^2/(1+\gamma)$$

$$\text{when } \delta = \frac{K_2 Q_\beta}{Q_N} = \frac{\text{artificially introduced damping}}{\text{original aerodynamic damping}}$$

$$\gamma = -K_3 Q_\beta = \frac{\text{change in controlling torque}}{\text{change in inertia torque for unit change in propeller acceleration}}$$

From the above the error in speed following a small sudden change ΔQ_0 can be obtained. Typical solutions are shown in graphical form, from which it appears that

(1) For aperiodic control with only an integral component (aerodynamic damping) the error surge following a sudden change in engine torque is about 75 per cent. of the deviation with no control.

Even if the damping ratio is reduced to .6 (oscillatory response) the surge is over 50 per cent. By introducing artificial damping so that $\delta = 5$, cuts the surge to 13 per cent. and retains aperiodic response.

The advantage of the δ component is thus obvious. Merely doubling the available Q_N damping by making $\delta = 1$ reduces the initial error surge as much as a reduction of ζ_s to .25.

The magnitude of the error surge thus depends only on ζ_s and δ and not on the inertia component γ of the control.

It should be noted that the system covered by the general equation of motion (3) is always stable and when subjected to a transient disturbance will eventually return to a position of zero error provided $\zeta_s > 0$.

In practice, however, conditions frequently arise in which the propeller control system is capable of sustained and self-excited oscillations. This is due to the presence of lag in the control, which is thus always detrimental.

Assuming lag to be proportional to the control velocity and acceleration, equation (2) takes the form

$$\beta_1 = K_1 \int n dt + \ldots - T_c \dot{\beta}_1 - (1/\omega_n^2) \ddot{\beta}_1 \quad . \quad . \quad . \quad (4)$$

where T_c = time constant of control.
ω_n = natural undamped frequency of control.

Putting

$$\alpha = T_c / T_p$$
$$\psi = 1/(\omega_n T_p)$$

where T_p = time constant of propeller
$= -1/Q_N$

The damping ratio of the free control now becomes $\zeta_c = \alpha/2\psi$. Applying the Routh Discriminant, the author shows that stability is ensured, provided

$$4\zeta_0^2 > \frac{(\alpha+\psi^2)^2}{\{(\alpha+\psi^2)(1+\alpha+\gamma)(1+\delta) - \psi^2(1+\delta)^2\}} \quad . \quad . \quad (5)$$

This is the general condition for a control of one degree of freedom with both integral and derivative control components and two orders of lag.

In the case of first order lag only ($\psi = 0$), (5) reduces to

$$4\zeta_0^2 > \alpha/(1+\alpha+\gamma)(1+\delta) \quad . \quad . \quad . \quad . \quad (6)$$

and if the control is of the simple integral type ($\delta = \gamma = 0$), the motion is stable for all values of lag provided $\zeta_0 > .50$.

It will be noted from (5) that the stability is increased by positive values of δ and γ.

For reasons of quick response, it is desirable, however, to make γ negative. The permissible limits are determined by (5).

The addition of second order lag to a given amount of first order lag will always make the system less stable, but an unstable system with inertia lag in the control cannot always be stabilised by increasing the damping in the control. The remedy here is to increase the aerodynamic damping of the propeller ζ_0 or decreasing ψ. The controls considered so far only introduced one additional degree of freedom. In the case of a centrifugal governor with hydraulic power amplification (each with its own lag), two further degrees of freedom are introduced.

It can be shown that under such conditions the stability for a given total lag is least if the lag is evenly distributed between the two systems.

The author finally illustrates the use of the various equations discussed by a worked out example covering a propeller/control system of the simple integral type with $K_1 = .085°$/sec./r.p.s. and control lag constant $T_c = 1.44$ sec., operating either at altitude (8,700 ft., $V = 250$ m.p.h.) or statically on the ground (take-off).

For disturbance, a sudden change of 500 ft. lb. in the engine torque is assumed. (The torque gradient of the engine is neglected.)

It is interesting to note that under these conditions the control only executes mild and quickly damped oscillations (max. speed error + 35 r.p.m.) when flying at altitude, but violent and continuous hunting on the ground (± 70 r.p.m., period 6.2 seconds). Primary cause of this oscillation is the smaller aerodynamic damping available on the ground at the lower blade angle required for take-off ($\beta = 18°$ on the ground against 29° in flight). This difficulty can be overcome by decreasing the control sensitivity factor K_1 as β becomes smaller (non-linear control). Thus making $K_1 = .056°$/sec./r.p.s. instead of .085°/sec./r.p.s., the response becomes aperiodic although the maximum speed error is increased (95 r.p.m.).

According to the author a device for ensuring an automatic reduction of sensitivity with blade angle thus appears well worth while for both integral and rate controls of the type discussed.

On the Design of the Contraction Cone for a Wind Tunnel. (H. S. Tsien, J. Aeron. Sc., Vol. 10, No. 2, Feb., 1943, pp. 68-70.) (119/11 U.S.A.)

When designing a contracting cone for a wind tunnel, the following conditions must be borne in mind:—

(1) Velocity at end of cone uniform.

(2) Curvature of wall must be small enough to ensure that the local velocity at wall does not exceed end velocity at any point (flow separation danger).

(3) Absence of compressibility shock.

Shock waves can be avoided if the velocity is below sonic in the whole field of flow. Since in a contracting cone, the highest velocities occur at the wall, the velocity in the cone will always be less than sonic, provided the wall velocity is made to increase monotonically from beginning to end of cone and that the end velocity is below sonic value.

Since the velocity of flow of a compressible fluid can always be obtained from the corresponding incompressible flow through the same boundary by multiplication with a certain factor, the design of the cone can be based on incompressible theory, provided the condition for monotonical increase in r at the wall is fulfilled. This simplifies the calculation very considerably.

With the x axis along the axis of symmetry of the cone and putting

u = axial velocity.
v = radial velocity.
r = corresponding radius.

we have

$$\frac{\partial v}{\partial x} - \frac{\partial u}{\partial r} = 0 \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

$$\frac{\partial}{\partial x}(ru) + \frac{\partial}{\partial r}(rv) = 0 \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

Also

$$v = 0 \text{ at } r = 0.$$
$$\partial u / \partial r = 0 \text{ at } r = 0.$$

Thus u and v must be even and odd functions of r respectively.

We may therefore put

$$u = \sum_{n=0}^{n=\infty} r^{2n} f_{2n}(x) \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

$$v = \sum_{n=0}^{\infty} r^{2n+1} f_{2n+1}(x) \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

Substituting (3) and (4) in (1) and (2) respectively and equating equal powers of r in each case, we obtain

$$u = \sum_{n=0}^{\infty} \frac{(-1)^n r^{2n}}{2^{2n}(n!)^2} f_0^{(2n)}(x)$$

$$v = \sum_{n=0}^{\infty} \frac{(-1)^n 2n r^{2n-1}}{2^{2n}(n!)^2} f_0^{(2n-1)}(x)$$

The resultant velocity $w = \sqrt{u^2 + v^2}$.

Starting off with an assumed monotonic velocity distribution $u = f_0(x)$ at $r = 0$, the resultant velocity w and the streamlines $\psi(x, r)$ can then be determined by a step by step method.

The shape of the contracting cone is then determined by the last streamline along which w still varies monotonically, whilst further out (larger r) this condition is no longer satisfied.

The final shape then depends on the form of $f_0(x)$ assumed. The author has adopted

$$f_0(x) = .55 + .90 \int_0^x \sqrt{2\pi} e^{-x^2/2} dx$$

which he considers plausible.

The final shape obtained is illustrated :—

Entry radius	...	13.5
Exit radius	...	10.0
Length	... ...	20.0

} units.

Induced Drag of a Twisted Wing. (H. W. Sibert, J. Aeron. Sc., Vol. 10, No. 2, Feb., 1943, pp. 71-72.) (119/12 U.S.A.)

The formula usually given for the induced drag coefficient of a wing is of the following form :—

$$C_{Di} = (1 + \sigma) C_L^2 / \pi A \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where C_L = lift coefficient.
A = aspect ratio.
σ = induced drag factor.

This evidently does not hold for a twisted wing which has a positive C_{Di} even when $C_L \to 0$.

The difficulty can be overcome by expressing C_L in terms of the section lift coefficient C_e, the variation of which along the span is expressed as a Fourier series.

$$C_e = m_s c_s / c \, (A_1 \sin \theta + A_2 \sin 2\theta + \ldots)$$

where c = chord of section.
c_s = chord at plane of symmetry.
m_s = shape of section lift coefficient at plane of symmetry.
A_1, etc. = coefficients.
θ = arc cosine of distance of section from plane of symmetry as a fraction of semi-span.

The expression for C'_L now becomes

$$C'_L = \pi A u_0 A_1 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

when $u_0 = m_s c_s / 4b$.
b = span.
A = aspect ratio,

and

$$(1+\sigma) = (A_1^2 + 2A_2^2 + 3A_3^2 + \ldots)/A_1^2 \quad . \quad . \quad . \quad (3)$$

Hence

$$C'_{Di} = \pi A u_0^2 (A_1^2 + A_2^2 + \ldots) \quad . \quad . \quad . \quad . \quad (4)$$

The method is illustrated by a worked out example for a wing fitted with flap. For a 60° deflection of flap,

$$C'_{Di} = .0425\ (C'_L - .0123)^2 + .0060.$$

LIST OF SELECTED TRANSLATIONS.

No. 65.

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THEORY AND PRACTICE OF WARFARE.

TRANSLATION NUMBER AND AUTHOR.	TITLE AND REFERENCE.
2016 ——	*Barrage Balloon Deflector.* (*German Patent No.* 728,852.) (Flugsport, Vol. 35, No. 6, 17/3/43, p. 4.)
2045 Hulten	*The PE-2 Russian Dive Bomber.* (Flyg., Vol. 21, No. 23, Sept.-Dec., 1943, pp. 21-24.)

AERO AND HYDRODYNAMICS.

2007 Ackeret, J.	*The Design of Closely Spaced Blade Grids.* (Schweizer Bauz.; Vol. 120, No. 9, 29/8/43, pp. 103-108.)
2019 Borbelyss	*Aerodynamic Forces on a Harmonically Oscillating Wing at Supersonic Velocity (Two-Dimensional Case).* (Z.A.M.M., Vol. 22, No. 4, Aug., 1942, pp. 190-205.)
2021 Sauer, R.	*The Method of Characteristics Applied to the One-Dimensional Unsteady Gas Flow.* (Ing. Archiv., Vol. 8, No. 2, April, 1942, pp. 79-89.)
2035 Kehl, A.	*Investigations on Convergent and Divergent Turbulent Boundary Layers.* (Ing. Archiv., Vol. 13, No. 5, 1943, pp. 293-329.)

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		MATERIALS AND ELASTICITY.
2014	Dehler	*Compressed Powder Magnet with Synthetic Resin Binders.* (Stahl und Eisen, Vol. 47, No. 6, 19/11/42, pp. 983-986.)
2025	Mikhailov, A. I. ...	*A New Approximate Method for Measuring the Percentage Elongation of Metals at Fracture.* (Metal Ind. News, U.S.S.R., Vol. 19, July, 1939, p. 71.)
2026	Albers-Schonberg, E.	*The Standardization of Steatic Insulators.* (Keram. Rundsch., Vol. 51, No. 1, 1/1/43, pp. 1-4.)
2030	Wolff, W. ... ... Pohler, G.	*Investigation on Enamelled Wire for Communication Engineering.* (Communicated by the Central Laboratory for Telegraph and Telephone Service of the A.E.G.)
2031	Benz, W.	*Natural Frequencies of Torsional Systems, in Particular Elastically-Mounted Epicyclic Gears.* (L.F.F., Vol. 20, No. 2, 27/2/43, pp. 46-47.)
		PRODUCTION.
2011	——	*Mobile Unit for the Periodic Cleansing of the Lubricating Systems of Machine Tools.* (Flugsport, Vol. 35, No. 9, 19/5/43, pp. 111-112.)
2013	Helbing, F.... ...	*The Weibel Process of Electric Welding in Aircraft Construction.* (Luftwissen, Vol. 10, No. 7, July, 1943, pp. 198-201.)
2015	Perthen, J.	*Surface Testing as a Guide to Surface Roughness.* (Werkstatt und Werksleiter, Vol. 32, No. 6, 15/3/38, pp. 154-157.)
2023	——	*New Miniature Electric Arc-Welding Appliances.* (Luftwissen, Vol. 10, No. 7, July, 1943, p. 202.)
2033	Flemming, H. ...	*Determination of Surface Quality.* (Z.V.D.I., Vol. 80, No. 25, 20/6/36, pp. 792-793.)
		BEARINGS.
2017	Heidebrock, E. ...	*Recent Research on Bearing Technique.* (A.T.Z., Vol. 44, No. 14, 25/4/41, pp. 349-353.)
2028	Menkle, H.	*Problems of Installation of Ball and Roller Bearings at Speeds above 20,000 r.p.m.* (Jahrbuch der Deutsche, L.F.F., 1938, Part II, pp. 107-109.)
		INSTRUMENTS.
2020	Gorelik, A. ... ... and others	*Air Electronic Defectoscope.* (Metal Ind. News, U.S.S.R., Vol. 19, No. 7, June, 1939, pp. 67-70.)
2036	Grosskopf	*A New Conductivity Meter.* (T.F.T., Vol. 31, No. 4, 1942, pp. 112-114.)
		MISCELLANEOUS.
2006	Gsell, R.	*Aircraft Operational Requirements for Large Commercial Airports in Switzerland.* (Strasse u. Verkehr, Vol. 27, No. 20, 1941, pp. 354-366.)
2012	——	*Examination Details for the Degree of Dipl.-Ing. in the Faculty of Mechanical Engineering of the Berlin Technical High School.* (School Calendar, 1934-1935, pp. 150-151.)

TITLES AND REFERENCES OF ARTICLES AND PAPERS SELECTED FROM PUBLICATIONS REVIEWED IN R.T.P.3.

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General Strategy.

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1	15308 U.S.A. ...	*London Survey (Statistical Analysis of the Destructive Effects of Bombing).* (P. G. Masefield, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 57, 84-90.)
2	16001 G.B.	*Air Battle Formulæ (Review of Mediterranean Front).* (J. Yoxall, Flight, Vol. 44, No. 1,817, 21/10/43, pp. 441-446.)
3	16011 G.B.	*Pigeons as Birds of War.* (F. W. Lane, Flight, Vol. 44, No. 1,817, 21/10/43, pp. 455-457.)
4	16020 G.B.	*Big Naval Air Station Built in South Africa.* (Engineer, Vol. 176, No. 4,581, 29/10/43, p. 354.)
5	16082 U.S.A. ...	*Air Transport's Value in Modern War (Map).* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 24.)
6	16094 G.B.	*Mediterranean Air Power.* (A. E. F. Glenny, Aeroplane, Vol. 65, No. 1,692, 29/10/43, pp. 488-489.)

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7	16144	G.B.	*Air Force Targets—No. 33 (Krupps Armament and Engineering Works).* (Engineer, Vol. 176, No. 4,581, 29/10/43, pp. 339-343.)
8	16282	U.S.A. ...	*The Lesson of Strategic Bombing (Organisation and Tactics).* (E. E. Miller, Aviation, Vol. 42, No. 8, August, 1943, pp. 114-121, 338-339.)
9	16390	G.B.	*Mediterranean Air Power.* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, pp. 518-519.)
10	16400	G.B.	*Victory Through Air Power.* (F. Murphy, Flight, Vol. 44, No. 1,820, 11/11/43, pp. 526-527.)
11	16408	G.B.	*Blazing the Trail—Use of Pathfinders.* (Flight, Vol. 44, No. 1,820, 11/11/43, p. 533.)
12	15496	G.B.	*Air Targets in Japan.* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 11.)
13	16505	G.B.	*Aircraft Supply to the Middle East.* (J. L. Vachell, Aeroplane, Vol. 65, No. 1,694, 12/11/43, pp. 560-561.)

Training and Organisation.

14	15356	G.B.	*Technical Training Courses for Servicing the Halifax Bomber.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, pp. 412-413.)
15	15606	Germany ...	*Plexiglass Submarine Models for Training.* (Signal, No. 9, May, 1943, p. 19.)
16	15607	Germany ...	*Training Tank for Escape Hatch Training (Submarine).* (Signal, No. 9, May, 1943, pp. 20-21.)
17	15671	U.S.A. ...	*Reorganisation of the American Air Staff.* (Inter. Avia., No. 876-877, 19/7/43, pp. 1-6.)
18	15727	U.S.A. ...	*New Items of Value to Combat Flying (Trainer for Educating Aerial Photographers on the Ground, Pre-Oiling Device to Prevent Bearing Failure, Piston Seizure, etc.).* (S. R. Winters, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 216, 301.)
19	16137	U.S.A. ...	*Four-Engined Boeing Bomber Provides Systematic Instructions for Heavy Bomber Students.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 156.)
20	16149	G.B.	*People and Planes—II (Pen Pictures of the High Command).* (J. Yoxall, Flight, Vol. 44, No. 1,818, 28/10/43, pp. 473-477.)
21	16193	U.S.A. ...	*C.A.A. Airport Model Used by Instructors (Photo).* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 68.)
22	16284	U.S.A. ...	*Pre-Flight Training Schools of the Flying Training Command—Part I.* (B. K. Yount, Aviation, Vol. 42, No. 8, August, 1943, pp. 124-125, 321-326.)
23	16452	Germany ...	*Hitler Youth—Athletic and Flying Competition at Quedlinburg,* 8-16/8/43. (Flugsport, Vol. 35, No. 13, 15/9/43, pp. 197-199.)

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24	16496	Poland	...	*The Polish Air Force Silver Jubilee.* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, pp. 544-545.)
25	16502	G.B. ...	...	*The A.T.C. of the Future.* (C. G. Grey, Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 554.)

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26	14559	G.B. ...	...	*Plastics in German Aircraft.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 215.)
27	15353	G.B. ...	...	*Paper Petrol Tanks.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, p. 404.)
28	15483	G.B. ...	...	*Steerable Nose Wheel on Payne Trainer.* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 144.)
29	15487	U.S.A.	...	*Stainless Steel in Aircraft Construction (from the Iron Age).* (Der Flieger, Vol. 22, No. 5, May, 1943, pp. 149-150.)
30	15488	U.S.A.	...	*List of American Plastics and Their Employment in Aircraft.* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 149.)
31	15507	U.S.A.	...	*New External Bomb Racks on the Boeing Flying Fortress (Photo).* (American Journal, Vol. 7, No. 6, 15/8/43, p. 19.)
32	15553	Germany	...	*Synthetic Resins in Aircraft Construction.* (Der Flieger, Vol. 22, No. 7, July, 1943, p. 202.)
33	15576	U.S.A.	...	*Plastic Aircraft Construction in the U.S.A.* (Der Flieger, Vol. 22, No. 2, Feb., 1943, p. 58.)
34	15665	U.S.A.	...	*Helicopter Developments in the U.S. Army Air Force.* (Inter. Avia., No. 879-880, 9/8/43, p. 17.)
35	15735	U.S.A.	...	*Caterpillar-Type Landing Gear (Photo).* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 297.)
36	15749	U.S.S.R.	...	*Woods Used in Russian Aeroplanes.* (R.T.P.3 Translation No. 1,820.) (J. Theiner, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 288, 292.)
37	15999	U.S.S.R.	...	*Russian Aircraft Designers.* (V. L. Gruberg, Flight, Vol. 44, No. 1,816, 14/10/43, p. 425.)
38	16008	U.S.S.R.	...	*A Russian View: Development Trend of Russian Aircraft.* (H. Polikarpov, Flight, Vol. 44, No. 1,817, 21/10/43, p. 453.)
39	16251	G.B. ...	...	*Drop Tanks—Supplementary Fuel Extends Range of Aircraft.* (Flight, Vol. 44, No. 1,819, 4/11/43, pp. 511-513.)

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40	15491	Germany	...	*The Duties of the Acceptance Test Pilot (Final Adjustments of Mass Produced Ju. 88 Before Delivery to the Front).* (Der Flieger, Vol. 22, No. 8, August, 1943, pp. 233-235.)
41	16192	U.S.A.	...	*Airworthiness and Operating Regulations.* (E. P. Warner, American Aviation, Vol. 7, No. 9, 1/10/43, p. 66.)

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43	15352	G.B. ...	... *Protection Against Balloon Cables.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, p. 404.)
44	15440	Germany	... *American Armour Suit for Aircrews.* (Flugsport, Vol. 35, No. 12, 18/8/43, p. 173.)
45	15480	Germany	... *Electrical Equipment of Ju. 88, including Wireless (700 Units, 6,000 m. wire, 500 kg. Weight).* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 144.)
46	15683	U.S.A.	... *Light Armoured Vest for Protection Against Shell Splinters.* (Inter. Avia., No. 876-877, 19/7/43, p. 24.)
47	15711	G.B. ...	... *Jerrican—New Type of Petrol Can.* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 433.)
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49	16023	G.B. ...	... *The Leigh Anti-Submarine Aircraft Searchlight.* (Flight, Vol. 44, No. 1,818, 28/10/43, p. 483.)
50	16054	U.S.A.	... *Midget Searchlight for Life Rafts.* (Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 179-180.)
51	16143	G.B. ...	... *Aircraft Searchlights and U-Boat Warfare.* (Engineer, Vol. 176, No. 4,581, 29/10/43, p. 337.)
52	16190	U.S.A.	... *Lighter Parachute (New Method of Packing and Use of Nylin Special Fabric).* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 38.)
53	16247	G.B. ...	... *The Rotol Auxiliary Generating Plant for Aircraft.* (Flight, Vol. 44, No. 1,819, 4/11/43, pp. 500-501.)
54	16307	U.S.A.	... *Parachute Servicing Table for Use in Combat Zones.* (Aviation, Vol. 42, No. 8, August, 1943, p. 229.)
55	16364	U.S.A.	... *Tyre Changer for Big Bombers.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 35.)
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56	14931	G.B. ...	... *A New British Explosive—R.D.X.* (Engineer, Vol. 176, No. 4,577, 1/10/43, p. 257.)
57	14980	U.S.A.	... *The Sperry Automatic Sight.* (Army Ordnance, Vol. 25, No. 140, September-October, 1943, p. 371.)
58	15400	U.S.A.	... *Circular Magazine for Airacobra Cannon (Photo).* (Inter. Avia., No. 875, 7/7/43, p. 1.)
59	15458	Germany	... *Flexible Cover for Gun Turret Slots (Pat. 724,234).* (Borsig, Flugsport, Vol. 35, No. 12, 18/8/43, p. 46.)
60	15460	Germany	... *Universal Spherical Gun Mounting in the Fuselage Wall (Pat. 735,459).* (L.A.G., Flugsport, Vol. 35, No. 12, 18/8/43, pp. 46-47.)

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61	15511	U.S.A. ...	*New Type Nose Turret (Emerson Electric Turret).* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 20.)
62	15582	Germany ...	*New German Machine Gun, M.G. 131.* (Der Flieger, Vol. 22, No. 1, Jan., 1943, pp. 20-21.)
63	15608	Germany ...	*Aircraft Gun Sighting Adjustment (Firing Targets).* (Signal, No. 7, April, 1943, p. 11.)
64	15633	Switzerland ...	*The Explicit Temperature Effect on Ballistic Trajectories.* (O. Kilhint, R. Sanger, Schweizer Archiv., Vol. 8, No. 6, June, 1942, pp. 167-168.)
65	15738	U.S.A. ...	*Adjustment of Gunsights on Aircraft Speeded up by New Alignment Device.* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 395-397.)
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67	16091	Germany ...	*Reports of the New German Bomb.* (Aeroplane, Vol. 65, No. 1,692, 19/10/43, p. 486.)
68	16145	G.B.	*The .5 in Side Machine Guns in the Noses of U.S. Fortresses (Photo).* (Flight, Vol. 44, No. 1,818, 28/10/43, p. 467.)
69	16290	U.S.A. ...	*The Bell Gun Recoil Damping Device.* (Aviation, Vol. 42, No. 8, August, 1943, pp. 178-181.)
70	16305	U.S.A. ...	*Sperry Automatic Computing Sight.* (Aviation, Vol. 42, No. 8, August, 1943, p. 229.)
71	16434	Germany ...	*Large Calibre Gun Installation on Aircraft (Recoil Balance by Firing in Opposite Directions)* (736,555), *Junkers Patent Series* 8 *(contd.).* (Flugsport, Vol. 35, No. 13, 15/9/43, pp. 52-53.)
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74	15397	G.B.	*Handley Page Halifax II (Photo).* (Inter. Avia., No. 875, 7/7/43, p. 1.)
75	15567	G.B.	*Hawker "Typhoon" (Photograph).* (Der Flieger, Vol. 22, No. 6, June, 1943, p. 179.)
76	15568	G.B.	*De Havilland Mosquito (Photograph).* (Der Flieger, Vol. 22, No. 6, June, 1943, p. 179.)
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78	15580	G.B.	*Short Stirling (Sectioned Drawing and Design Details).* (Der Flieger, Vol. 22, No. 1, Jan., 1943, pp. 16-17.)
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80	15673	G.B.	*Hawker Typhoon (I).* (Inter. Avia., No. 876-877, 19/7/43, p. 11.)

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81	15914	G.B.	*Inside the Stirling.* (E. P. Meyers, Autom. and Aviation Ind., Vol. 89, 1/9/43, pp. 37, 38-41, 60-62.)
82	16396	G.B.	*The Taylorcraft Auster III (Recognition Details).* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 533.)
83	16399	G.B.	*Mosquito Versatility.* (Flight, Vol. 44, No. 1,820, 11/11/43, pp. 524-525.)
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94	15512	U.S.A. ...	*Curtiss "Seagull" (Photo).* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 24.)
95	15554	U.S.A. ...	*American Advanced Trainers (Photographs).* (Der Flieger, Vol. 22, No. 7, July, 1943, p. 203.)
96	15578	U.S.A. ...	*Bell Airacobra (Sectioned Drawing).* (Der Flieger, Vol. 22, No. 1, Jan., 1943, p. 13.)
97	15595	U.S.A. ...	*Consolidated 28 "Catalina" (Sectioned Drawing).* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 107.)
98	15663	U.S.A. ...	*Lockheed P-38 Lightning.* (Inter. Avia., No. 879-880, 9/8/43, p. 15.)
99	15664	U.S.A. ...	*American Troop Transport Plane (List of Types).* (Inter. Avia., No. 879-880, 9/8/43, pp. 15-17.)
100	15674	U.S.A. ...	*Kaiser-Hughes 8-Engined Plywood Flying Boat Project (Useful Load 120,000 lb.).* (Inter. Avia., No. 876-877, 19/7/43, p. 13.)
101	15715	U.S.A. ...	*Mustang Acquires Added Fire Power (4-20 mm. Cannon).* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 147.)
102	15726	U.S.A. ...	*Fairchild "Cornell" Primary Trainer (Exploded View).* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 214-215.)
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108	16025	U.S.A.	...	*Vought-Sikorsky Kingfisher* (*V.S.-310*) (*Photo*). (Flight, Vol. 44, No. 1,818, 28/10/43, p. 488.)
109	16084	U.S.A.	...	*New Super-Bomber Planned in U.S.A.* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 26.)
110	16093	U.S.A.	...	*Lockheed Lightning P. 38 as Escort Fighter for Daylight Raids.* (Aeroplane, Vol. 65, No. 1,692, 29/10/43, p. 487.)
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116	16184	U.S.A.	...	*New U.S. Torpedo Plane—Seawolf.* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 16.)
117	16188	U.S.A.	...	*Grumman's New "Hellcat" Fighter Plane* (*Photo*). (American Aviation, Vol. 7, No. 9, 1/10/43, p. 35.)
118	16246	U.S.A.	...	*The Lockheed Lightning—America's Twin-Engined Long-Range Fighter.* (Flight, Vol. 44, No. 1,819, 4/11/43, pp. 497-500.)
119	16285	U.S.A.	...	*Design Analysis of the Curtiss Commando.* (J. Foster, Aviation, Vol. 42, No. 8, August, 1943, pp. 130-153.)
120	16295	U.S.A.	...	*Design Detail Sketch of Consolidated Vultee PBY Catalina.* (Aviation, Vol. 42, No. 8, August, 1943, pp. 187-189.)
121	16296	U.S.A.	...	*Bell P-39 Airacobra Wing* (*Design Detail*). (Aviation, Vol. 42, No. 8, August, 1943, p. 189.)
122	16391	U.S.A.	...	*Lockheed Lightning P-38* (*Photo*). (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 520.)
123	16395	U.S.A.	...	*The North American Mustang I.* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, pp. 527-531.)
124	16397	U.S.A.	...	*The Stinson L-5B Sentinel* (*Recognition Details*). (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 533.)
125	16403	U.S.A.	...	*Invader* (*A-36*) (*Fighter-Dive Bomber Version of the Mustang*) (*Recognition Details*). (Flight, Vol. 44, No. 1,820, 11/11/43, p. a.)
126	16411	U.S.A.	...	*Grumman Avenger* (*Tarpon*) (*Photo*). (Flight, Vol. 44, No. 1,820, 11/11/43, p. 523.)
127	16447	U.S.A.	...	*Martin B-26* (*Photo of Plexiglass Nose and Tail Windows*). (Flugsport, Vol. 35, No. 13, 15/9/43, p. 185.)

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			Military Types of Aircraft (U.S.S.R.).
128	15515	U.S.S.R. ...	*New Russian Aircraft.* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 32.)
129	15666	U.S.S.R. ...	*Petlyakoff PE-2 Russian Light Bomber.* (Inter. Avia., No. 879-880, 9/8/43, p. 20.)
130	15750	U.S.S.R. ...	*The Lagg-3 Russian Fighter.* (*R.T.P.3 Translation No.* 1,822.) (Nils Hulten, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 289-292.)
131	16259	U.S.S.R. ...	*Lagg-3* (*Sectional Drawing and Parts List*). (Flying, No. 16, 26/8/43, pp. 20-21.)
132	16500	U.S.S.R. ...	*Aeroplanes of the Red Air Forces—I* (*The Ant-g, Ant-20 bis, Ar-2, Ark-3*) (*Recognition Details*). (Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 552.)
			Military Types of Aircraft (Germany).
133	15150	Germany ...	*The History of the Luftwaffe Heavies.* (H. J. A. Wilson, Aeronautics, Vol. 9, No. 2, September, 1943, pp. 33-38.)
134	15354	Germany ...	*Heinkel III Designations.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, p. 404.)
135	15435	Germany ...	*Focke-Wulf F.W.* 190. (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 163-165.)
136	15474	Germany ...	*Focke-Wulf F.W.* 190 (*Sectional Drawing*). (Der Flieger, Vol. 22, No. 5, May, 1943, p. 131.)
137	15475	Germany ...	*Heinkel He.* 111 (*Photograph*). (Der Flieger, Vol. 22, No. 5, May, 1943, p. 132.)
138	15489	Germany ...	*The Development of the Heinkel He.* 111 (*Well Illustrated*). (Der Flieger, Vol. 22, No. 8, August, 1943, pp. 220-225.)
139	15490	Germany ...	*The Ju.* 52 *Universal Transport Plane* (*Examples of Utilisation*). (Der Flieger, Vol. 22, No. 8, August, 1943, pp. 230-231.)
140	15562	Germany ...	*He.* 111 (*Photographs*). (Der Flieger, Vol. 22, No. 6, June, 1943, pp. 158-161.)
141	15563	Germany ...	*The Development of the Dornier Wal. Type of Flying Boat.* (W. Zuerl, Der Flieger, Vol. 22, No. 6, June, 1943, pp. 164-167.)
142	15572	Germany ...	*Me.* 109 (*Sectional Drawing*). (Der Flieger, Vol. 22, No. 2, Feb., 1943, pp. 48-49.)
143	15577	Germany ...	*Dornier Do.* 217 (*Photograph*). (Der Flieger, Vol. 22, No. 1, Jan., 1943, p. 5.)
144	15584	Germany ...	*Bucker Trainers.* (Der Flieger, Vol. 21, No. 3, March, 1942, pp. 66-68.)
145	15591	Germany ...	*Dornier Do.* 217 (*Photograph*). (Der Flieger, Vol. 22, No. 4, April, 1943, p. 93.)
146	15594	Germany ...	*Me.* 110 (*Sectioned Drawing*). (Der Flieger, Vol. 22, No. 4, April, 1943, pp. 104-105.)
147	15654	Germany ...	*Junkers Ju.* 86*P High Altitude Bomber* (*British Notes*). (I., Inter. Avia., No. 879-880, 9/8/43, p. 9.)
148	15655	Germany ...	*Heinkel He.* 177 (*British Notes*). (Inter. Avia., No. 879-880, 9/8/43, pp. 9-10.)
149	15656	Germany ...	*Blohm and Voss B.V.* 222 (*British Notes*). (Inter. Avia., No. 879-880, 9/8/43, p. 10.)

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150	15657	Germany ...	*Messerschmitt Me. 323 Transport (British Notes).* (Inter. Avia., No. 879-880, 9/8/43, p. 10.)
151	15679	Germany ...	*New Version of Me. 110 Intercepter Fighter (Six Cannon).* (Inter. Avia., No. 876-877, 19/7/43, p. 17.)
152	15706	Germany ...	*Heinkel Development (Different Versions of the Heinkel 111).* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 439.)
153	15997	Germany ...	*Junkers Ju. 290 (Recognition Details).* (Flight, Vol. 44, No. 1,816, 14/10/43, p. b.)
154	16003	Germany ...	*Ju. 87 D2 with 13 mm. MG 131 (Photo).* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 449.)
155	16004	Germany ...	*The Me. 410.* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 449.)
156	16016	Germany ...	*German Fighter Aircraft.* (Engineer, Vol. 176, No. 4,581, 29/10/43, p. 346.)
157	16148	Germany ...	*New Version of Me. 110 (Photo) (Showing Cannon Installation).* (Flight, Vol. 44, No. 1,818, 28/10/43, p. 472.)
158	16248	Germany ...	*Blohm and Voss B.V. 222 (Recognition Details).* (Flight, Vol. 44, No. 1,819, 4/11/43, p. 502.)
159	16297	Germany ...	*Wing of Junkers Ju. 88 (Design Detail).* (Aviation, Vol. 42, No. 8, August, 1943, p. 191.)
160	16404	Germany ...	*Messerschmitt Me. 109G (Recognition Details).* (Flight, Vol. 44, No. 1,820, 11/11/43, p. b.)
161	16405	Germany ...	*Ju. 86P High Altitude Aircraft (Photo).* (Flight, Vol. 44, No. 1,820, 11/11/43, p. 531.)
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162	15436	Japan ...	*Mitsubishi S-00 Fighter.* (Flugsport, Vol. 35, No. 12, 18/8/43, p. 166.)
163	15680	Japan ...	*New Japanese Twin-Engined Medium Bomber I.* (Inter. Avia., No. 876-877, 19/7/43, p. 18.)
164	15710	Japan ...	*Aeroplanes of the Japanese Army and Navy Air Forces (Silhouettes).* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 443.)
			Military Types of Aircraft (Italy).
165	15478	Italy	*Macchi. M.C. 202 Fighter (Photograph).* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 142.)
166	15481	Italy	*Re. 2003 Two-Seater Trainer (Photo).* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 144.)
167	15482	Italy	*Caproni Ca. 331 Night Fighter (Photo).* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 144.)
168	15669	Italy	*Cant. 1018 Medium Bomber (Photograph).* (I., Inter. Avia., No. 879-880, 9/8/43.)
169	15670	Italy	*Cant. 515 Float Reconnaissance Plane (Photo).* (I., Inter Avia., No. 879-880, 9/8/43.)
170	16012	Italy	*The Piaggio 108.* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 458.)
171	16445	Italy	*Caproni Ca. 313 Light Bomber.* (Flugsport, Vol. 35, No. 13, 15/9/43, pp. 181-182.)
			Military Types of Aircraft (France).
172	15551	France ...	*Bugatti High Speed Aircraft (Review of Patents).* (Der Flieger, Vol. 22, No. 7, July, 1943, p. 195.)

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173	15659	France ...	*Gauthier Trainer (Incorporating Feature of Morane 460).* (Inter. Avia., No. 879-880, 9/8/43, p. 12.)
174	15660	France ...	*French Giant Flying Boats S.E. 200 and Latè 631.* (Inter. Avia., No. 879-880, 9/8/43, p. 12.)
			Military Types of Aircraft (Sweden and Spain).
175	15565	Sweden ...	*Swedish Military Aircraft.* (Der Flieger, Vol. 22, No. 6, June, 1943, pp. 172-175.)
176	15681	Sweden ...	*Swedish Twin-Engined Light Bomber B-18.* (I., Inter. Avia., No. 876-877, 19/7/43, p. 18.)
177	15682	Sweden ...	*J. 22 Fighter.* (Inter. Avia., No. 876-877, 19/7/43, p. 18.)
178	16007	Sweden ...	*An Unorthodox Swedish Project: Asymmetrical Fighter and Bomber (Isacson Design).* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 452.)
179	16013	Spain ...	*Spanish and Mexican Trainers.* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 458.)
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180	15392	U.S.A. ...	*Atlantic Glider Train.* (Inter. Avia., No. 875, 7/7/43, pp. 16-17.)
181	15434	Germany ...	*Sailplane Rheinland 108-74.* (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 162-163.)
182	15477	U.S.A. ...	*American Type of Sail Planes (V).* (Der Flieger, Vol. 22, No. 5, May, 1943, pp. 136-141.)
183	15494	Hungary ...	*Types of Hungarian Sail Planes.* (Der Flieger, Vol. 22, No. 8, August, 1943, pp. 239-242.)
184	15555	Switzerland ...	*Swiss Types of Sail Planes.* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 204-208.)
185	15569	Switzerland ...	*Swiss Types of Sail Planes (VI).* (Der Flieger, Vol. 22, No. 6, June, 1943, pp. 180-182.)
186	15583	Germany ...	*New 45 Hours' Sailing Record for Germany.* (E. Vergens, Der Flieger, Vol. 22, No. 1, Jan., 1943, pp. 22-23.)
187	15597	France ...	*French Type of Sail Planes.* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 110.)
188	15598	France ...	*Fauvel Tailless Glider AV. 17 (Silhouette).* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 110.)
189	15662	G.B.	*Horsa Troop Transport Glider.* (I., Inter. Avia., No. 879-880, 9/8/43, p. 13.)
190	15675	U.S.A. ...	*Atlantic Glider Train (Nylon Towing Cable 340 ft.).* (Inter. Avia., No. 876-877, 19/7/43, pp. 13-14.)
191	15676	U.S.A. ...	*Auxiliary Engine for Waco CG-4 Fifteen-Seater Transport Glider.* (I., Inter. Avia., No. 876-877, 19/7/43, p. 14.)
192	16309	U.S.A. ...	*New U.S. Amphibious Glider (Photo).* (Aviation, Vol. 42, No. 8, August, 1943, p. 277.)
193	16362	G.B.	*Airspeed Horsa Transport Glider.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 32-33.)
194	16451	Germany ...	*Standard Specification Sheets (No. 9-16 for Certain Glider Components).* (Flugsport, Vol. 35, No. 13, 15/9/43, pp. 187-188.)
			Fleet Air Arm.
195	15357	G.B.	*The Fairey Albacore of the Fleet Air Arm.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, pp. 414-415.)

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196	15705	G.B.	*Navy Observer Trainer—Stinson Reliant 1 (Photo).* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 433.)
197	15708	G.B.	*Work of Wrens in Fleet Air Arm.* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, pp. 442-443.)
198	15954	G.B.	*The Rôle of the Aircraft Carrier (U.S.A. Developments).* (B. J. Hurren, Flight, Vol. 44, No. 1,816, 14/10/43, pp. 415-419.)
199	16015	G.B.	*New U.S. Aircraft Carriers.* (Engineer, Vol. 176, No. 4,581, 29/10/43, p. 345.)
200	15099	G.B.	*The Fleet Air Arm.* (A. Bryant, Aeroplane, Vol. 65, No. 1,692, 29/10/43, pp. 498-499.)
201	16185	U.S.A. ...	*The U.S. Fleet Air Arm (Aircraft Figures).* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 30.)
202	16245	G.B.	*The Fleet Air Arm.* (Flight, Vol. 44, No. 1,819, 4/11/43, p. 495.)
203	16389	G.B.	*Fleet Air Arm.* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 517.)
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204	15744	Switzerland ...	*A.A. Searchlights (Description, Functioning and Method of Employment).* (H. Born, Flugwehr und Technik., Vol. 5, No. 2, February, 1943, pp. 39-41.)
205	15745	Switzerland ...	*The Effect of Angular Acceleration on the Sighting of A.A.Guns.* (A. Roth, Flugwehr und Technik., Vol. 5, No. 2, February, 1943, pp. 42-46.)
206	15750	Switzerland ...	*Some Elementary Considerations on the Employment of Light A.A. Guns.* (H. Born, Flugwehr und Technik., Vol. 5, No. 8, August, 1943, pp. 206-209.)
207	16198	U.S.A. ...	*Instruction in Fire-Fighting at the Norfolk Navy Base.* (National Petroleum News, Vol. 35, No. 34, 25/8/43, pp. 17-20.)
208	16392	U.S.S.R. ...	*Soviet Barrage Balloons (Photo).* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 522.)
			GENERAL AERODYNAMICS.
209	12717	Germany ...	*Some Notes on the Theory of Free Turbulence.* (L. Prandtl, Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 241-243.)
210	12718	Germany ...	*A New Approximeter Method for the Numerical Evolution of Free Turbulence Problems.* (H. Gortler, Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 244-254.)
211	12720	Germany ...	*The Flow of Compressible Fluids about Solid Bodies (Subsonic Speeds).* (F. Eser, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 220-230.)
212	12721	Germany ...	*The Theory of the Unsteady Compression Shock (Two Dimensional Problem).* (R. Sauer, Ing. Archiv., Vol. 14, No. 1, 1943.)
213	12722	Germany ...	*Unsteady Gas Flow in Nozzles and Diffusors with Some Notes on Flow having Spherical Symmetry.* (F. Schultz Grunow, Ing. Archiv., Vol. 14, No. 1, 1943.)

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214	15590	Germany ...	*Boundary Layer Control by Emission of A* (*N.A.C.A. Experiments*). (Der Flieger, Vol. 2	234
			No. 3, March, 1942, p. 86.)	
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			pp. A179-A180.)	
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			Numbers. (A. Ferri, Luftwissen, Vol. 10, No.	
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219	15065	G.B.	*The U.S. Office of Air Transport Information*	241
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221	15395	U.S.A. ...	*Air Lines in Latin America*. (Inter. Avia., No. 87	243
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222	15396	U.S.A. ...	*Developments in Aerial Mail Pick-up Services*	
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225	15667	U.S.A. ...	*Civil Aviation Projects in the U.S.A.* (Inter. Avia.,	245
			No. 879-880, 9/8/43, pp. 27-28.)	
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230	16024	G.B.	*Air Transport* (*Debate in House of Lords*). (Flight,	
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234	16191	U.S.A. ...	*C.A.B. Study of U.S. Overseas Mail.* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 43.)
235	16250	G.B.	*International Air Travel in Wartime (the Mediterranean Battle Fronts).* (J. Yoxall, Flight, Vol. 44, No. 1,819, 4/11/43, pp. 505-510.)
236	16279	U.S.A. ...	*Flying Freight.* (R. S. Ball, Service Engineering, Vol. 1, No. 2, Spring, 1943, pp. 6-7.)
237	16283	U.S.A. ...	*Our Planes and Our Peace (Future of Aviation Industry).* (H. Woodhead, Aviation, Vol. 42, No. 8, August, 1943, pp. 122-123, 333-338.)
238	16347	U.S.A. ...	*Basic Fundamentals for Packaging Air Cargo Shipments.* (J. H. Macleod, S.A.E. Preprint, 8-9/11/43, pp. 1-8.)
239	16348	U.S.A. ...	*Co-ordinating Air and Surface Cargo Transportation.* (J. H. Frederick, S.A.E. Preprint, 8-9/11/43, pp. 1-8.)
240	16349	U.S.A. ...	*The Use of Air Freighters in Areas not Served by Other Adequate Means of Transportation in Northern Canada.* (W. L. Brintnell, S.A.E. Preprint, 8-9/11/43, pp. 1-7.)
241	16398	G.B.	*Shipowners' Plan to Operate Air Lines.* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 534.)
242	16498	G.B.	*Pioneers of Flying in the U.S.A.* (G. Brewer, Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 550.)
243	16504	G.B.	*The Case for the Established Air Lines in Post-War Air Transport.* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 559.)
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245	15502	G.B.	*Future Aircraft — Landplane or Flying-Boat?* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 31.)
246	15524	G.B.	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,056, 8/10/43, pp. 285-286.)
247	15547	Germany ...	*Tailless Aircraft (German Type).* (Der Flieger, Vol. 22, No. 3, March, 1943, pp. 80-81.)
248	15550	France ...	*New Types of French Civil Aircraft.* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 190-194.)
249	15566	France ...	*Tailless Aircraft (French and American Types).* (W. Zuerl, Der Flieger, Vol. 22, No. 6, June, 1943, pp. 176-178.)
250	15573	Germany ...	*Tailless Aircraft (German Types — Delta and Storch).* (Der Flieger, Vol. 22, No. 2, Feb., 1943, pp. 50-51.)
251	15596	Germany ...	*German Tailless Aircraft (Horten and Gotha).* (W. Zuerl, Der Flieger, Vol. 22, No. 4, April, 1943, pp. 108-109.)
252	15661	Switzerland ...	*French Commercial Transport Trials (SO 30N and SO 161).* (Inter. Avia., No. 879-880, 9/8/43, pp. 12-13.)

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253	15714	U.S.A.	...	*Sky Cars for Civilian Use.* (W. B. Stout, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 128-130.)
254	15885	G.B.	...	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,058, 22/10/43, pp. 337-338.)
255	15908	U.S.A.	...	*Noorduyn U.C.-64 Cargo Transport Plane (Photo).* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 25.)
256	16101	G.B.	...	*Lockheed Lodestar Transport (Photo).* (Aeroplane, Vol. 65, No. 1,692, 29/10/43, p. 500.)
257	16102	G.B.	...	*Consolidated CO 87 Liberator Express Transport (Photo).* (Aeroplane, Vol. 65, No. 1,692, 29/10/43, p. 501.)
258	16136	U.S.A.	...	*To-morrow's Air Transport Planes.* (A. Klemin, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 154-156.)
259	16187	U.S.A.	...	*Fairchild's New All-Metal Cargo Plane.* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 34.)
260	16244	G.B.	...	*Avro York Transport Aircraft (Photo).* (Flight, Vol. 44, No. 1,819, 4/11/43, p. 492.)
261	16249	G.B.	...	*Civil Lancaster (Recognition Details).* (Flight, Vol. 44, No. 1,819, 4/11/43, p. 503.)
262	16353	G.B.	...	*The Avro York Transport Aircraft.* (Engineer, Vol. 176, No. 4,582, 5/11/43, p. 357.)
263	16393	G.B.	...	*The Avro York Transport (Photo).* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 523.)
264	16407	G.B.	...	*Comments on Our Newest Air Liner-Freighter (Avro-York).* (Flight, Vol. 44, No. 1,820, 11/11/43, pp. 532-533.)
265	16503	G.B.	...	*The Avro York (Photographs).* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, pp. 556-557.)
				Design and Construction.
266	15360	G.B.	...	*An Outline of Wooden Construction (Historical Survey of Wooden Aircraft).* (J. A. Sizer, Aeroplane, Vol. 65, No. 1,689, 8/10/43, pp. 418-421.)
267	15391	U.S.A.	...	*South American Mahogany Used for Wooden Cargo Planes.* (Inter. Avia., No. 875, 7/7/43, p. 16.)
268	15446	Germany	...	*Tailless Aircraft (Pat. 735,149).* (Messerschmitt, Flugsport, Vol. 35, No. 12, 18/8/43, pp. 41-42.)
269	15476	G.B.	...	*Tailless Aircraft (Dunne, Pterodactyl, Handley Page, Roxbee Cox) (with Special Reference to the Handley Page Automatic Trimming Device).* (W. Zuerl, Der Flieger, Vol. 22, No. 5, May, 1943, pp. 135-137.)
270	15514	U.S.A.	...	*Martin Engineer Designs New Cargo Plane (Special Provisions for Loading and Unloading Incorporated in the Design).* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 30.)
271	15672	G.B.	...	*New Civil Aircraft Projects in G.B.* (Inter. Avia., No. 876-877, 19/7/43, pp. 10-11.)
272	15707	G.B.	...	*An Outline of Wooden Construction—II.* (J. A. Sizer, Aeroplane, Vol. 65, No. 1,690, 15/10/43, pp. 440-441.)

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273	15722	U.S.A. ...	*Large Landplanes for Large Payloads.* (B. Smith, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 192-195.)
274	15781	G.B.	*Jet Propelled Aircraft.* (Engineer, Vol. 176, No. 4,560, 22/10/43, p. 326.)
275	15995	G.B.	*A Vision of 25 Years Ahead (the Lonsdale-Hands Project for Jet Propelled Aircraft, etc.).* (Flight, Vol. 44, No. 1,816, 14/10/43, pp. 420-421.)
276	16002	G.B.	*Aircraft Weight Reduction.* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 447.)
277	16340	Germany ...	*Calculation of Stiffened Shells in Metal Aeroplane Construction.* (Z.V.D.I., Vol. 86, No. 33-34, 22/8/42, pp. 497-507.) (E. Schapitz, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 277-281.)
			Performance, Stability and Control.
278	15725	U.S.A. ...	*Streamlining Dynamic Stability Computations (Part IV).* (M. M. Munk, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 207-208, 301.)
279	15746	Switzerland ...	*The Take-off of Heavily Loaded Aircraft.* (H. L. Studer and F. Widmer, Flugwehr und Technik., Vol. 5, No. 2, February, 1943, pp. 48-51.)
280	15747	G.B.	*Calculation of Wing Profile Drag—A New Simplified Method of Practical Value to Engineers.* (M. Holt, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 278-282.)
281	15748	G.B.	*The Lateral Stability of Aeroplanes—A New Geometrical System of Analysis (Part IV) (including Corrections to Part III).* (H. L. Price, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 281-287.)
282	16317	G.B.	*Diving Speed Calculations.* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp. 51-52.) (E. Kennel, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 271-273.)
			Propellers and Helicopters.
283	15389	U.S.A. ...	*Unimatic Hydraulically Operated Variable Pitch Airscrew (Steel Blades).* (I., Inter. Avia., No. 875, 7/7/43, p. 14.)
284	15432	G.B.	*Propeller Developments.* (Mechanical World, Vol. 114, No. 2,961, 1/10/43, pp. 395-400.)
285	15463	Germany ...	*Twin Screw Helicopter with Intersecting Blade Discs (Pat. 733,590).* (Flettner, Flugsport, Vol. 35, No. 12, 18/8/43, p. 48.)
286	15492	Germany ...	*Junkers Variable Pitch Propeller VS (Sectional Diagram).* (Der Flieger, Vol. 22, No. 8, August, 1943, p. 235.)
287	15493	Germany ...	*Fundamentals of the Autogyro.* (Der Flieger, Vol. 22, No. 8, August, 1943, pp. 236-238.)
288	15503	G.B.	*V.P. Airscrews—Adaptation to Marine Use.* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 34.)

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289	15588	Germany	...	*Variable Pitch Propellers (II)—Junkers VS Propeller.* (Der Flieger, Vol. 21, No. 3, March, 1942, pp. 82-83.)	306
290	15589	Germany	...	*Curtiss Hollow Steel Blade for Propellers.* (Der Flieger, Vol. 21, No. 3, March, 1942, p. 85.)	
291	15686	U.S.A.	...	*Helicopter Service Projects.* (Inter. Avia., No. 876-877, 19/7/43, p. 30.)	307
292	15739	U.S.A.	...	*A New Device for Rapid Testing of Gyro Rotors (Few Mins.).* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 397.)	308
293	16277	U.S.A.	...	*What About the Helicopter?* (Service Engineering, Vol. 1, No. 2, Spring, 1943, pp. 2-3.)	
294	16437	Germany	...	*Directional Control for Rotary Wing Aircraft Fitted with Side by Side Rotors (Pat. 689,552).* (Focke, Flugsport, Vol. 35, No. 13, 15/9/43, p. 54.)	309
295	16438	Germany	...	*Drive for Rotary Systems Producing Axial Thrust and Kept in Rotation by Vibration of the Thrust Producing Members (Pat. 736,822).* (A.V.A. (Goethingen), Flugsport, Vol. 35, No. 13, 15/9/43, p. 54.)	310
296	16439	Germany	...	*Device for the Automatic Thrust Control of an Airscrew (with Special Application to the Compensation and Control Screws Fitted to Helicopters (Pat. 733,730).* (Flettner, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 54-55.)	311
297	16440	Germany	...	*Single Rotor Helicopter Control by Auxiliary Airscrew at Tail (Pat. 734,201).* (Focke, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 55-56.)	312
				General Accessories and Patents.	313
298	15452	Germany	...	*Damping Device for Aircraft Structural Parts (Pat. 734,709).* (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, p. 43.)	314
299	15454	Germany	...	*Control of Artificial Horizon to Give True Banking Angle During a Turn (Pat. 736,170).* (Siemens, Flugsport, Vol. 35, No. 12, 18/8/43, p. 45.)	
300	15455	Germany	...	*Distant Control of Two or More Navigational Instruments (Pat. 736,171).* (Siemens, Flugsport, Vol. 35, No. 12, 18/8/43, p. 45.)	315
301	15461	Germany	...	*Universal Spherical Joint for Aircraft Structural Parts (Pat. 734,939).* (Arado, Flugsport, Vol. 35, No. 12, 18/8/43, p. 47.)	316
302	15920	U.S.A.	...	*A Combination Air Scoop and Filter for Light Planes.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 44, 74.)	317
303	16098	G.B.	...	*Aircraft Accessory Systems—I (Abstract of S.A.E. Paper).* (T. B. Holliday, Aeroplane, Vol. 65, No. 1,692, 29/10/43, pp. 495-497.)	318
304	16181	G.B.	...	*Electrical Installations (Standardisation in Accessories and Fittings).* (Electrician, Vol. 131, No. 3,412, 22/10/43, pp. 405-406.)	319
305	16394	G.B.	...	*Aircraft Accessory Systems—II.* (T. B. Holliday, Aeroplane, Vol. 65, No. 1,693, 5/11/43, pp. 525-526.)	320

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306	16462	Germany ...	*Corner Guide for Control Cables (Interposed Endless Belt)* (*Pat.* 735,939). (Heinkel, Flugsport, Vol. 35, No. 13, 15/9/43, p. 52.)
			Cabins and Windscreens.
307	15443	Germany ...	*Flexible Outer Wall of Pressure Cabin Assuming Correct Shape at Altitude* (*Pat.* 734,935). (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, p. 41.)
308	15444	Germany ...	*Stopping Pressure Cabin Leaks by Means of Metal Spraying* (*Pat.* 736,109). (Arado, Flugsport, Vol. 35, No. 12, 18/8/43, p. 41.)
309	15445	Germany ...	*Aircraft Window Frames* (*Pat.* 734,808). (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, p. 41.)
310	15754	G.B.	*Pressure Control System for Aircraft Cabins (Boeing Patent).* (Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, p. 308.)
311	16453	Germany ...	*Universal Windscreen Cleaner (Endless Belt Conveying Cleansing Fluid and Effective Against Rain, Snow, Sand, Mist and Ice* (*Pat.* 736,908). (Focke-Wulf, Flugsport, Vol. 35, No. 13, 15/9/43, p. 49.)
312	16454	Germany ...	*Adjustable Cabin Enclosure* (*Pat.* 737,293). (Heinkel, Flugsport, Vol. 35, No. 13, 15/9/43, p. 49.)
313	16455	Germany ...	*Pressure Cabin Double Window with Air Purifier Sealed into Central Space* (*Pat.* 737,294). (Junkers, Flugsport, Vol. 35, No. 13, 15/9/43, p. 49.)
314	15462	Germany ...	*Silica Gel Air Drier for the Interior of Aircraft Structures (Corrosion Protection)* (*Pat.* 734,951). (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, p. 48.)
			Landing Gear, Brakes.
315	15456	Germany ...	*Interconnection of Rudder and Tab* (*Pat.* 736,331). (Heinkel, Flugsport, Vol. 35, No. 12, 18/8/43, p. 45.)
316	15457	Germany ...	*Foot Pedals for Brake Operation* (*Pat.* 734,938). (Focke-Wulf, Flugsport, Vol. 35, No. 12, 18/8/43, pp. 45-46.)
317	15508	U.S.A. ...	*New Tank-Type Landing Gear.* (American Aviation, Vol. 7, No. 6, 15/8/43, p. 36.)
318	15747	Switzerland ...	*The Realisation of the Aircraft Propeller Landing Brake.* (A. V. de Muhll, Flugwehr und Technik., Vol. 5, No. 2, February, 1943, pp. 51-54.)
319	15791	Switzerland ...	*The Effectiveness of the Propeller as a Landing Brake.* (A. von der Muhll, Flugwehr und Technik., Vol. 5, No. 8, August, 1943, pp. 211-217.)
320	16206	Switzerland ...	*The Airscrew as a Landing Brake.* (From Flugwehr und Technik., Vol. 5, No. 2, Feb., 1943, pp. 51-54.) (A. von der Muhll, Engineers Digest, Vol. 4, No. 8, August, 1943, pp. 231-232.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Fuselage, Wings, Flaps.
321	15447	Germany ...	*Adjustable Nose Slot for Suction or Emission of Air* (*Pat.* 734,936). (Heinkel, Flugsport, Vol. 35, No. 12, 18/8/43, p. 42.)
322	15448	Germany ...	*Operating Mechanism for Split Flaps* (*Pat.* 734,869). (Breda, Flugsport, Vol. 35, No. 12, 18/8/43, p. 42.)
323	15449	Germany ...	*Maintaining Laminar Flow on a Profile* (*Pat.* 734,937). (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, pp. 42-43.)
324	15450	Germany ...	*Wings of Very High Camber* (*Pat.* 736,169). (Reiter, Flugsport, Vol. 35, No. 12, 18/8/43, p. 43.)
325	15451	Germany ...	*Device for Increasing the Friction Lift of Fuselages* (*Pat.* 736,216). (Heinkel, Flugsport, Vol. 35, No. 12, 18/8/43, p. 43.)
326	15453	Germany ...	*Protection of Landing Flaps Against Overload* (*Pat.* 737,729). (Dornier, Flugsport, Vol. 35, No. 12, 18/8/43, p. 44.)
327	15459	Germany ...	*Fuselage Flaps for Rearward Fire* (*Pat.* 733,168). (Dornier, Flugsport, Vol. 35, No. 12, 18/8/43, p. 46.)
328	16435	Germany ...	*Stringer Profiles* (*Pat.* 736,493). (Junkers, Flugsport, Vol. 35, No. 13, 15/9/43, p. 53.)
329	16436	Germany ...	*Adjustable Wing Stops for Rotating Wing Aircraft* (*Pat.* 737,528). (Flettner, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 53-54.)
330	16456	Germany ...	*Hydraulically Operated Landing Flap* (*Pat.* 736,716). (Junkers, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 49-50.)
331	16457	Germany ...	*Adjustable Fowler Flap* (*Pat.* 737,614). (Heinkel, Flugsport, Vol. 35, No. 13, 15/9/43, p. 50.)
332	16458	Germany ...	*Landing Flap by Dynamic Pressure and Provided with Clockwork Controlled Delay Mechanism* (*Pat.* 737,176). (Frexler, Flugsport, Vol. 35, No. 13, 15/9/43, p. 50.)
333	16459	Germany ...	*Automatic Lateral Stabiliser During Climb Controlled by Difference Between Thrust and Dynamic Head* (*Pat.* 737,177). (Junkers, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 50-51.)
334	16461	Germany ...	*Lateral Control by Means of Spoilers* (*Pat.* 735,881). (Messerschmitt, Flugsport, Vol. 35, No. 13, 15/9/43, pp. 51-52.)
			De-icing.
335	15510	U.S.A. ...	*New Anti-Ice Device* (*Rubber Strip as Conductor of Electricity*). (American Aviation, Vol. 7, No. 7, 1/9/43, p. 19.)
336	16090	U.S.A. ...	*Wing De-Icing* (*Use of Exhaust Gases*). (American Aviation, Vol. 7, No. 8, 15/9/43, p. 78.)
337	16363	U.S.A. ...	*A Thermal Anti-Icing System Developed by the Consolidated Vultee Aircraft Corp.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 34.)
338	16367	U.S.A. ...	*New Device Keeps Ice from Propellers* (*Use of Conductive Rubber*). (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 42.)

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				Airfields, Seadromes.
339	15140	U.S.A.	...	*Floating Airports in Mid-Ocean.* (Scientific American, Vol. 169, No. 3, September, 1943, pp. 118-120.)
340	15331	G.B. ..	...	*Floating Airports.* (Engineer, Vol. 176, No. 4,578, 8/10/43, pp. 293-294.)
341	15509	U.S.A.	...	*Tangent Runway Pattern Suggested for Idlewild Airport.* (American Aviation, Vol. 7, No. 6, 15/8/43, pp. 46-47.)
342	15513	U.S.A.	...	*C.A.A. Revises Airport Plans.* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 28.)
343	15518	U.S.A.	...	*Fairchild Builds an All-Wood Hangar (Photo).* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 75.)
344	15521	U.S.A.	...	*Federal State Airport Plan Proposed.* (American Aviation, Vol. 7, No. 7, 1/9/43, pp. 16, 28.)
345	15685	U.S.A.	...	*Floating Air Bases in Mid-Atlantic (Project).* (Inter. Avia., No. 876-877, 19/7/43, p. 29.)
346	15817	G.B. ...	...	*Soil Mechanics and Foundation Problems (Abstract).* (H. Q. Golder, Journal of the Institution of Civil Engineers, Vol. 20, No. 8, Oct., 1943, pp. 276-277.)
347	15818	G.B. ...	...	*Aerodrome Abstracts (Vol. II, No. 4, Abstracts Nos. 59-77).* (Journal of the Institution of Civil Engineers, Vol. 20, No. 8, Oct., 1943.)
348	16010	G.B. ...	...	*Tangent Runways (Suggested Pattern for New Idlewild Airport).* (Flight, Vol. 44, No. 1,817, 21/10/43, p. 454.)
349	16022	G.B. ...	...	*Post-War Airport Needs.* (Flight, Vol. 44, No. 1,818, 28/10/43, p. 482.)
350	16086	U.S.A.	...	*C.A.A. Studies an Ideal Airport Design.* (American Aviation, Vol. 7, No. 8, 15/9/43, pp. 38-40, 64.)
351	16087	U.S.A.	...	*New Method for "Painting" White Stripes on Black-Top Runways.* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 48.)
352	16122	G.B. ...	...	*Timber Hangars for the United States Navy.* (Engineering, Vol. 156, No. 4,059, 29/10/43, pp. 341-343, 350.)
353	16138	U.S.A.	...	*Latin American Airways (Book Review).* (W. A. M. Burden, Scientific American, Vol. 169, No. 4, Oct., 1943, p. 156.)
354	16189	U.S.A.	...	*Los Angeles Airport Plan.* (American Aviation, Vol. 7, No. 9, 1/10/43, p. 35.)
355	16276	U.S.A.	...	*Airport of the Future.* (Service Engineering, Vol. 1, No. 2, Spring, 1943, p. 1.)
356	16410	G.B. ...	...	*Airport Design—Points Against Tangent Runways.* (G. Dawbarn, Flight, Vol. 44, No. 1,820, 11/11/43, p. 540.)
				Maintenance, Servicing.
357	15731	U.S.A.	...	*Factory-Designed Repairs (for Damaged Aircraft).* (M. Duke and L. C. Cowgill, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 238-253, 301.)
358	15926	U.S.A.	...	*Special Propeller Handling Equipment (Photo).* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 76.)

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359	15970	Germany ...	*The Utilisation of Aircraft for Combating Insect Pests.* (Flughafen, Vol. 11, No. 1, January, 1943, pp. 7-10.)
360	16280	U.S.A. ...	*Maintenance and Service (Complete Tool Kit, Turnbuckle Holding and Adjusting Fixture, etc.).* (Service Engineering, Vol. 1, No. 2, Spring, 1943, p. 8.)
361	16301	U.S.A. ...	*Tyre Installation Dolly.* (Aviation, Vol. 42, No. 8, August, 1943, p. 216.)
362	16302	U.S.A. ...	*Towing Device for Removing Plane with Flat Tyre from Runway.* (Aviation, Vol. 42, No. 8, August, 1943, pp. 216, 223.)

ENGINES AND ACCESSORIES.

Named Engine Types.

363	14949	U.S.A. ...	*Some Aspects of Diesel Engines for Navy Main Propulsion.* (E. W. Hills, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 625-627.)
364	14950	U.S.A. ...	*Diesel Engine Maintenance in the Navy.* (T. G. Reemy, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 628-632, 663.)
365	15326	G.B.	*John Henry Hamilton and the Positive Scavenging Engine—No. 1.* (A. K. Bruce, Engineer, Vol. 176, No. 4,578, 8/10/43, pp. 281-282.)
366	15473	Germany ...	*The History of the Daimler-Benz Aircraft Engine.* (Der Flieger, Vol. 22, No. 5, May, 1943, pp. 124-129.)
367	15545	Germany ...	*Development of B.M.W. Aero Engines.* (Der Flieger, Vol. 22, No. 3, March, 1943, pp. 75-79.)
368	15546	Germany ...	*Sectional Drawing of B.M.W. 801.A* (Der Flieger, Vol. 22, No. 3, March, 1943, p. 79.)
369	15552	Germany ...	*Jumo 211.* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 196-201.)
370	15564	Germany ...	*Development of the Junkers Aero Engines.* (Der Flieger, Vol. 22, No. 6, June, 1943, pp. 168-171.)
371	15571	Germany ...	*Development of the Argus Aero Engine.* (Der Flieger, Vol. 22, No. 2, Feb., 1943, pp. 43-47.)
372	15585	Germany ...	*Brumo Fafnir 323P Aero Engine.* (Der Flieger, Vol. 21, No. 3, March, 1942, pp. 76-78.)
373	15592	Germany ...	*Development of B.M.W. Aero Engine.* (Der Flieger, Vol. 22, No. 4, April, 1943, pp. 94-97.)
374	15687	G.B.	*John Henry Hamilton and the Positive Scavenging Engine.* (A. K. Bruce, Engineer, Vol. 176, No. 4,579, 15/10/43, pp. 301-303.)
375	15709	G.B.	*The Cirrus Minor Aero Motor.* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 444.)
376	15779	G.B.	*John Henry Hamilton and the Positive Scavenging Engine—III.* (A. K. Bruce, Engineer, Vol. 176, No. 4,580, 22/10/43, pp. 320-322.)
377	16089	U.S.A. ...	*New Packard-Rolls Royce Engine (Incorporating Two-Speed Two-Stage Supercharger).* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 72.)
378	16147	Sweden ...	*The Mannerstedt Engine—An Unorthodox Swedish Multi-Row 42-Cylinder Radial.* (Flight, Vol. 44, No. 1,818, 28/10/43, p. 469.)

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379	16323	U.S.A. ...	*New Power Plant for Landing Barges (General Motors Two-Cycle Diesel Engines).* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 48.)
380	16401	G.B.	*Bristol Hercules Progress.* (Flight, Vol. 44, No. 1,820, 11/11/43, pp. 528-530.)
381	16416	Germany ...	*The Supercharging of Small High Speed Diesels (Translated from I.A.E. Lecture).* (J. H. Pitchford, M.T.Z., Vol. 1, No. 5, Nov., 1939, pp. 156-160.)
382	16488	G.B.	*The Bristol "Hercules" Aero Engine.* (Engineer, Vol. 176, No. 4,583, 12/11/43, pp. 383-385.)
			Design and Installation.
383	14604	Germany ...	*Geometrical Characteristics of Spiral Level Gears of the Palloid Type (Design Sheet 62/63).* (W. Krumme, A.T.Z., Vol. 45, No. 17, 10/9/42, p. 470a.)
384	15485	Germany ...	*Four-Bank Six-Cylinder Four-Stroke Radial Engine with Cranks in One Plane.* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 145.)
385	15632	Switzerland ...	*The Fundamentals of Light Weight Design.* (F. Streiff, Schweizer Archiv., Vol. 8, No. 7, July, 1942, pp. 212-230.)
386	15751	Germany ...	*Three German Engine Fuel Systems.* (Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 293-302.)
387	15905	U.S.A. ...	*Power for Tanks (Engine Requirements for Tanks).* (J. R. Custer, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 17-19, 80.)
388	16033	Switzerland ...	*"Light Design" Commercial Motor.* (Koenig, Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 514-518.)
389	16116	U.S.S.R. ...	*Some Problems of Engine Dynamics in Application to Design.* (J. J. Artobolevsky, Metal Industries Review, Vol. 19, No. 7, July, 1939, pp. 15-21.)
390	16419	Germany ...	*List of Recent Russian Patents on Internal Combustion Engines.* (M.T.Z., Vol. 1, No. 5, Nov., 1939, p. 179.)
			Wear and Efficiency.
391	15327	G.B.	*Change Gear Calculations.* (H. N. Merritt, Engineer, Vol. 176, No. 4,578, 8/10/43, pp. 282-284.)
392	15631	Switzerland ...	*Wear and Lubrication (Abstract).* (R. Poppinger, Schweizer Archiv., Vol. 8, No. 8, August, 1942, p. 262.)
393	15644	Switzerland ...	*Wear Phenomena in Dry Solid Friction (Abstract).* (E. Siebel, Schweizer Archiv., Vol. 8, No. 3, March, 1942, p. 98.)
394	15721	U.S.A. ...	*Engine Failures as Causes of Aircraft Accidents.* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 191.)
395	15985	G.B.	*Oil Engine Intake and Exhaust Losses.* (R. L. Boyer, Mechanical World, Vol. 114, No. 2,964, 22/10/43, p. 480.)

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396	16387	G.B.	*The Coefficient of Propulsive Efficiency.* (K. C. Barnaby, Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 378-380.)
397	16413	Germany ...	*The Air Consumption of Aircraft Engines at Altitude.* (J. Zeyns, M.T.Z., Vol. 1, No. 5, Nov., 1939, pp. 145-151.)

Accessories (Pistons, Cylinders, etc.).

398	14607	Germany ...	*Standard Terms for the Description of Motor Car Components—III (Carburettors, Fuel Pumps, Tanks, etc.).* (H. Hartel, A.T.Z., Vol. 45, No. 17, 10/11/42, pp. 475-479.)
399	14896	G.B.	*A New Bearing Design for High Speed and Minimum Friction.* (Machinery, Vol. 63, No. 1,614, 16/9/43, p. 321.)
400	14897	G.B.	*Laminated Fabric-Resin Plastics for Bearings.* (W. A. Cook, Machinery, Vol. 63, No. 1,614, 16/9/43, pp. 322-326.)
401	14960	U.S.A. ...	*Recommended Specification for Prime Mover Speed Governing.* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 664-668.)
402	15313	U.S.A. ...	*Power Actuator Cylinders (Use of Carbon Dioxide Gas in Case of Failure of Hydraulic System).* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 112.)
403	15315	U.S.A. ...	*Curtiss Automatic Engine Speed Synchronizer.* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 114.)
404	15484	Germany ...	*German Piston Alloy Mahle 124.* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 145.)
405	15912	U.S.A. ...	*High Capacity Ball Reciprocating Bearings.* (S. R. Thomas, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 35, 85-86.)
406	15916	U.S.A. ...	*Calculation of Proportional Cams.* (C. H. Bouvy, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 45, 48, 78-79.)
407	15983	G.B.	*Air Excludes Grit from Bearings (Swedish Development).* (Mechanical World, Vol. 114, No. 2,964, 22/10/43, p. 473.)
408	16066	G.B.	*Cylinder Head Packings (Patent).* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, p. 422.)
409	16288	U.S.A. ...	*Piston Ring Design Makes or Breaks the Engine.* (D. M. Smith and H. Wainwright, Aviation, Vol. 42, No. 8, August, 1943, pp. 171-174, 326-333.)
410	16330	G.B.	*German Light Alloy Pistons.* (Metal Industry, Vol. 63, No. 19, 5/11/43, pp. 298-300.)
411	16354	G.B.	*German Aero Engine Pistons.* (Engineer, Vol. 176, No. 4,582, 5/11/43, pp. 363-364.)
412	16380	G.B.	*Metallurgical Investigation of German Aero Engine Pistons.* (Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 367-368, 370.)
413	16501	Germany ...	*German Aero Motor Pistons.* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 553.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Turbines, Pumps, Boilers.
414	15194	G.B. ...	... *Water Circulation in Steam Boilers—V. The Principle of Forced Circulation.* (J. Webster, Mechanical World, Vol. 114, No. 2,960, 24/9/43, pp. 365-368.)
415	15427	G.B. ...	... *The Operation and Maintenance of Steam Boilers.* (F. J. Redman and H. A. H. McDonic, Mechanical World, Vol. 114, No. 2,961, 1/10/43, pp. 382-385.)
416	15690	G.B. ...	... *The pH Value of Boiler Feed Water.* (J. B. Jackson, Engineer, Vol. 176, No. 4,579, 15/10/43, pp. 308-309.)
417	15823	U.S.A.	... *Quick Starting of Steam Turbines.* (K. Frey, Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 518-530.)
418	15826	U.S.A.	... *Operation and Care of Boiler Control Systems.* (Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 549-560.)
419	15978	G.B. ...	... *The Operation and Maintenance of Steam Boilers—II. Modern Furnace Design and Operation.* (F. J. Redman and H. A. J. McDonic, Mechanical World, Vol. 114, No. 2,962, 8/10/43, pp. 422-425.)
420	16167	Germany	... 100 *Years Turbine Development.* (E. Foerster, Schiff und Werft, Vol. 44-24, No. 17-18, September, 1943, pp. 262-266.)
			Fuel Injection.
421	15910	U.S.A.	... *Stroboscope Unmasks Fuel Injection.* (P. H. Schweitzer, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 32-34.)
422	16414	Germany	... *The Archaouloff Method of Fuel Injection for Diesel Engines.* (K. Mohr, M.T.Z., Vol. 1, No. 5, Nov., 1939, pp. 151-153.)
423	16418	Germany	... *A New Injection Method for Gas Engines.* (Translated from I.M.E. Journal, June, 1939.) (R. A. Erren, M.T.Z., Vol. 1, No. 5, Nov., 1939, pp. 163-164.)
			Testing and Maintenance.
424	15556	Germany	... *Engine Testing on the Ground and in the Air.* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 209-210.)
425	15617	Switzerland	... *Determination of the Change of State of the Working Substances in Turbo Machinery (Entropy Increase).* (O. Zweifel, Schweizer Archiv., Vol. 8, No. 1, January, 1942, pp. 28-33.)
426	15840	U.S.A.	... *Investigation of Self-Excited Torsional Oscillations and Vibration Damper for Induction Motor Drives (Discussion).* (Journal of Applied Mechanics, Vol. 10, No. 3, Sept., 1943, pp. A176-A177.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
427	15913	Germany ...	*A Method to Overcome Piston Ring Seizure.* (F. Gossland, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 36.)
428	16021	G.B.	*Pre-Selected Engine Speed (Lockheed's System of Speed Control of Airscrews).* (Flight, Vol. 44, No. 1,818, 28/10/43, pp. 480-481.)
429	16109	G.B.	*Variable Speed Control (Use of Magnetic Coupling for Power Regeneration on Engine Test Beds).* (Electrical Review, Vol. 133, No. 3,433, 10/9/43, pp. 337-338.)
430	16115	U.S.S.R. ...	*On the Methods of Determining Permissible Stresses in Machinery Parts.* (J. A. Dending, Metal Industries Review, Vol. 19, No. 7, July, 1939, pp. 3-14.)
431	16159	G.B.	*Regenerative Dynamometers (a Means of Utilising Power Developed on Aircraft Engine Test Beds).* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 511.)
432	16271	U.S.A. ...	*The Diesel Engine at War (Maintenance Servicing, Special Servicing Tools, Diesel Types, etc.).* (Service Engineering, Vol. 1, No. 3, Summer, 1943, pp. 1-15.)
			Thermodynamics.
433	15829	U.S.A. ...	*Periodic Heat Transfer at Small Pressure Fluctuations.* (H. Pfriem, N.A.C.A. Tech. Memo. No. 1,048, Sept., 1943.)
434	15833	U.S.A. ...	*Temperature Relations in Journal Bearing Systems.* (R. Musket and F. Morgan, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A131-A138.)
435	16140	U.S.A. ...	*Control of Oil Temperature for Maximum Efficiency in Machinery.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 159.)
436	16341	Germany ...	*Transmission of Heat Between Vertical Walls and Turbulent Water Films.* (Z.V.D.I., Vol. 86, No. 27-28, July, 1942, pp. 444-445.) (V. Grigull, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 286-287.)
437	16346	U.S.A. ...	*Heat Transfer Over the Circumference of a Heated Cylinder in Transverse Flow.* (E. Schmidt and K. Wenner, N.A.C.A. Tech. Memo. No. 1,050, October, 1943, pp. 1-15.)
438	16491	G.B.	*Causes of High Dewpoint Temperatures in Boiler Flue Gases.* (W. F. Harlow, Engineer, Vol. 176, No. 4,583, 12/11/43, pp. 393-394, 390.)
			De-icing.
439	15586	Germany ...	*British Opinion on De-Icing of Carburettor and Propeller by Means of De-Icing Pumps Handling Alcohol-Glycerine Mixture.* (Der Flieger, Vol. 21, No. 3, March, 1942, p. 79.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
440	15441	Germany	...	*Hot Air De-Icing with Special Reference to Engine Cowlings (Pat. 730,008).* (B.M.W., Flugsport, Vol. 35, No. 13, 15/9/43, p. 56.)

FUELS AND LUBRICANTS.

Liquid Fuels.

441	15368	G.B.	...	*Standard Temperature for Specific Gravity Determination and Volume Correction (for Petroleum Products).* (Petroleum Times, Vol. 47, No. 1,203, 4/9/43, p. 470.)
442	15724	U.S.A.	...	*Behaviour of Gasoline at High Temperatures.* (F. E. Mock, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 204, 298.)
443	15881	G.B.	...	*Production of Liquid Fuels from Minerals in the United States.* (Engineering, Vol. 156, No. 4,058, 22/10/43, p. 325.)
444	16104	U.S.A.	...	*Determination of Tetraethyl Lead in Gasoline.* (L. Schwartz, Industrial and Engineering Chemistry, Vol. 15, No. 8, 17/8/43, pp. 499-501.)
445	16108	U.S.A.	...	*Viscosity of Solutions in Branched-Chain Paraffins.* (E. H. McArdle and E. A. Robertson, Industrial and Engineering Chemistry, Vol. 15, No. 8, 17/8/43, pp. 484-487.)
446	16169	G.B.	...	*Reclamation of Waste Petroleum—The Yokes-Petco Solvent Re-Refiner.* (Petroleum Times, Vol. 47, No. 1,206, 16/10/43, p. 560.)
447	16494	G.B.	...	*Air Force Petrol Consumption.* (Engineer, Vol. 176, No. 4,583, 12/11/43, p. 377.)

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448	16128	U.S.A.	...	*Fluid Catalysis—New Process for Boosting Supply of High Octane Aviation.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 162.)
449	16199	U.S.A.	...	*Triptane on Commercial Scale.* (National Petroleum News, Vol. 35, No. 36, 1/9/43, p. 18.)
450	16467	U.S.A.	...	*Triptane Process (for Aviation Fuel).* (Ind. and Eng. Chem. (News Edition), Vol. 21, No. 18, 25/9/43, pp. 1560-1562.)

Gaseous Fuels.

451	15369	G.B.	...	*The Producer Gas Plant Industry in France.* (E. A. Bell, Petroleum Times, Vol. 47, No. 1,203, 4/9/43, p. 472.)
452	15534	Germany	...	*Operation of Motor Vehicles on Coal Gas (Gas Bag Trailer).* (Gas, Vol. 15, No. 2, Feb., 1943, pp. 26-27.)
453	15979	G.B.	...	*Fuel in Germany—Transport Changing Over to Producer Gas.* (Mechanical World, Vol. 114, No. 2,964, 22/10/43, p. 466.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Solid, Powdered Fuels.
454	15199	G.B.	*Discussion on "Coal for Steam Raising."* (Institution of Electrical Engineers, Vol. 90, No. 33, P. 1, Sept., 1943, pp. 397-416.)
455	16195	G.B.	*Identification of Powdered Wood Charcoals.* (L. G. G. Warne, Journal of the Society of Chemical Industry, Vol. 62, No. 9, Sept., 1943, pp. 141-144.)
456	16196	G.B.	*Creosote Pitch Fuel: its Wartime Development in Britain.* (A. J. Gibbs Smith, Petroleum Times, Vol. 47, No. 1,205, 2/10/43, pp. 520-522, 540.)
			Oils and Lubricants.
457	14887	G.B.	*The Beginnings of Lubrication Technique.* (Engineering, Vol. 156, No. 4,054, 24/9/43, pp. 251-252.)
458	14941	G.B.	*Gear Lubrication with Lead.* (Metal Industry, Vol. 63, No. 14, 1/10/43, p. 212.)
459	15334	G.B.	*Anomalous Viscosity Shown in Oil Flow Through Engine Bearings.* (S. M. Heale, Philosophical Magazine, Vol. 34, No. 236, Sept., 1943, p. 577.
460	15367	G.B.	*Front Line U.S. Pipelines in N. Africa and Sicily.* (Petroleum Times, Vol. 47, No. 1,203, 4/9/43, p. 406.)
461	15628	Switzerland ...	*Lubricants and Fuel for Diesel Engines.* (H. Stager and H. Kunzler, Schweizer Archiv., Vol. 8, No. 8, August, 1942, pp. 231-252.)
462	15643	Switzerland ...	*Association Processes in Mineral Oils.* (R. Linke, Schweizer Archiv., Vol. 8, No. 3, March, 1942, p. 97.)
463	15844	U.S.A. ...	*An Evaluation of Quenching Oils (No. 3).* (E. K. Spring and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-15.)
464	15911	U.S.A. ...	*Plastic Petroleum Used to Lubricate the Magazines of Marine Anti-Aircraft Guns.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 34.)
465	16067	G.B.	*Diesel Lubricating Problems.* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, p. 424.)
466	16170	G.B.	*Oil Cleaning—Section 2 (Oil Contamination by Deterioration).* (L. Rosenfeld, I.A.E. Report, No. 1,943-11, Section 2, September, 1943, pp. 3-18.)
467	16197	G.B.	*What of the German Oil Position?* (Petroleum Times, Vol. 47, No. 1,205, 2/10/43, pp. 525-531, 540.)
468	16417	Germany ...	*The Lubrication of Static and Ship's Diesel Engines.* (M. Gratzl, M.T.Z., Vol. 1, No. 5, Nov., 1939, pp. 161-163.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.

THEORY OF ELASTICITY

(STRESSES IN BEAMS, PLATES, Etc.).

469	15603	Germany ...	*Dynamic Extensometer Measurements on the Rear Axle of a Lorry.* (F. Lehr and R. Schulz, A.T.Z., Vol. 45, No. 17, 10/9/42, pp. 461-470.)
470	15442	Germany ...	*Nomograms for the Buckling Stress of Dural Plates (Technical Notes Nos. 9-12).* (Flugsport, Vol. 35, No. 12, 18/8/43, p. 168a.)
471	15467	Germany ...	*The Rôle of Internal Stresses in the Process of Strain Hardening.* (G. Masing, Z.J. Metallk., Vol. 35, No. 2, February, 1943, p. 56.)
472	15622	Switzerland ...	*Stress Calculations for Autoclave Flanges (VII).* (R. V. Band, Schweizer Archiv., Vol. 8, No. 10, October, 1942, pp. 315-322.)
473	15625	Switzerland ...	*Stress Calculations for Autoclave Flanges (VI) (with Special Reference to Plasticity and Fatigue).* (R. V. Band, Schweizer Archiv., Vol. 8, No. 9, September, 1942, pp. 274-288.)
474	15649	Germany ...	*Transverse Vibrations of a Cantilever with a Load.* (A. Schallenkamp, Ing. Archiv., Vol. 13, No. 5, pp. 267-272.)
475	15650	Germany ...	*Stresses Due to Single Loads Applied to a Semi-Infinite Plate.* (K. Girkmann, Ing. Archiv., Vol. 13, No. 5, pp. 273-284.)
476	15651	Germany ...	*Movement Compensation in Plastic Girder Structures and the Compatibility of Changes in Shape.* (H. Craemer, Ing. Archiv., Vol. 13, No. 5, pp. 285-292.)
477	15802	U.S.A. ...	*Chart for Computing Tensile Stresses.* (J. C. Gould, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 431-432.)
478	15806	U.S.A. ...	*Endurance of Machine Parts Under a Few Heavy Loads.* (J. O. Almen, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 435-440.)
479	15808	U.S.A. ...	*Residual Stresses in Wire Loops at Anchorage Shoes or Grommets.* (G. Brewer, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 441-447.)
480	15831	U.S.A. ...	*Stress Distributions in Cylindrically Aeolotropic Plates.* (G. F. Carrier, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A117-A122.)
481	15836	U.S.A. ...	*Photo-Elastic Separation of Principal Stresses by Oblique Incidence.* (D. C. Drucker, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A156-A160.)
482	15837	U.S.A. ...	*A Numerical Procedure for the Calculation of the Moments in Edge Reinforcements of Cut-Outs in Monocoques.* (N. J. Hoff, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A161-A167.)

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483	15838	U.S.A. ...	*The Free Lateral Vibrations of a Cantilever Bea with a Terminal Dashpot.* (E. J. McBrid Journal of Applied Mechanics, Vol. 10, P. September, 1943, pp. A168-A172.)
484	15839	U.S.A. ...	*Design Data for Flat Circular Plates with Centr Holes.* (W. E. Trumpler, Journal of Applie Mechanics, Vol. 10, No. 3, Sept., 1943, pp A173-A175.)
485	15866	U.S.A. ...	*The Stress Distribution at the Neck of a Tensio Specimen (No. 25).* (P. W. Bridgman, A.S.M Preprints (25th Annual Convention), 18-22 10 pp. 1-20.)
486	15956	G.B.	*Loads and Deflections of Stainless Steel Roun Wire Helical Springs (Chart).* (Machinery, Vol 63, No. 1,617, 7/10/43, p. 399.)
487	15964	Germany ...	*The Problem of the Floating Beam.* (F. Schie Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp 205-262.)
488	15965	Germany ...	*On the Stresses in Semi-Infinite Space Subjecte to a Hemispherical Stress Distribution.* (H Vounoff, Z.A.M.M., Vol. 22, No. 5, Oct., 194 pp. 262-269.)
489	16068	Germany ...	*The Eccentrically Loaded Rigid Plate on an Elast Isotropic Foundation.* (H. Borowicks, Ing Archiv., Vol. 14, No. 1, 1943, pp. 1-8.)
490	16069	Germany ...	*Stress Distribution in a Semi-Infinite Space Du to Surface and Internal Loads (Soil Mechanics* (K. Honban, Ing. Archiv., Vol. 14, No. 1, 194 pp. 9-13.)
491	16210	Germany ...	*Elastic Deformation of Yokes.* (From Werkste und Betrieb, Vol. 75, No. 7, July, 1942, pp 150-157.) (H. Birkle, Engineers' Digest, Vol. 4 No. 8, August, 1943, pp. 237-239.)
492	16211	G.B.	*Design of Highly Stressed Studs to Improve The Fatigue Strength.* (Engineers' Digest, Vol. 4 No. 8, August, 1943, pp. 239-241.)
493	16318	G.B.	*Stress Increase in Hollow Section Under Torsion* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp 40-50.) (A. Weigand, Engineers' Digest, Vo 4, No. 9, Sept., 1943, pp. 273-274.)
499	16460	G.B.	*Some Notes on the Shear Centre of Thin-Walled Open Sections.* (T. Haas, Journal of the Royal Aeron. Society, Vol. 47, No. 395, Nov., 1943 pp. 383-389.)

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A. Properties.

Al. and Mg. Alloys.

500	14948	G.B.	*Protection of Magnesium.* (Metal Industry, Vol 63, No. 14, 1/10/43, p. 220.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
501	15529	G.B.	*Structure of Aluminium as Revealed by X-Rays.* (E. E. Spillett, Engineering, Vol. 156, No. 4,050, 8/10/43, p. 294.)
502	15759	G.B.	*A New Magnesium Base Alloy.* (Metal Industry, Vol. 63, No. 16, 15/10/43, p. 248.)
503	15796	G.B.	*Alumina from Low Grade Materials.* (Metal Industry, Vol. 63, No. 17, 22/10/43, p. 266.)
504	16027	G.B.	*Alloying Practice for Magnesium Alloys.* (Light Metals, Vol. 6, No. 69, Oct., 1943, p. 479.)
505	16029	G.B.	*Light Alloys in Machine Tools.* (Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 480-493.)
506	16160	G.B.	*British Magnesium—History of its Development in This Country.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 557-558.)
507	16329	G.B.	*Design of Aluminium Hammer Forgings.* (Metal Industry, Vol. 63, No. 19, 5/11/43, pp. 295-297.)
508	16343	Sweden ...	*Rivet Wire and Rivets of Al.-Cu.-Mg. Alloy.* (Tekinsk Tidskrift, Vol. 73, 10/7/43, pp. 53-58.) (S. Tobert, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 291-293.)
509	16485	G.B.	*Mechanical Ingotting of Aluminium and Magnesium Turnings.* (M. Stern, Metal Industry, Vol. 63, No. 20, 12/11/43, p. 313.)
			Iron and Steel.
510	14936	G.B.	*American Steel Research.* (Engineer, Vol. 176, No. 4,577, 1/10/43, p. 274.)
511	15113	G.B.	*The Strain Ageing of Killed Low Carbon Steel, with Particular Reference to the Effect of Titanium.* (G. F. Comstock, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1723-1730.)
512	15382	Germany ...	*Weldable Vanadium Bearing Steels of High Strength.* (Stahl und Eisen, Vol. 60, 1940, Aug., pp. 684-687.) (H. Cornelius, The Institute of Welding, Quarterly Trans., Vol. 5, No. 4, October, 1942, pp. 177-180.)
513	15780	G.B.	*Iron and Steel Institute—Summary of Papers Presented at the Autumn Meeting.* (Engineer, Vol. 176, No. 4,580, 22/10/43, pp. 325-326.)
514	15847	U.S.A. ...	*A Metallographic Study of the Decomposition of Austenite in Manganese Steels (No. 6).* (J. V. Russell and F. T. McGuire, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-19.)
515	15851	U.S.A. ...	*The Effect of Varying Amounts of Martensite upon the Isothermal Transformation of Austenite Remaining After Controlled Quenching (No. 10).* (H. J. Elmendorf, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-20.)
516	15853	U.S.A. ...	*Martensite Reactions in Alloy Steels (No. 11).* (F. Payson and C. H. Savage, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-16.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
517	15854	U.S.A.	...	*Influence of Nickel, Molybdenum, Cobalt and Silicon on the Kinetics and Ar" Temperatures of the Austenite to Martensite Transformations in Steels* (*No.* 12). (H. H. Chiswik and A. B. Greninger, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-35.)
518	15857	U.S.A.	...	*The Tensile Properties of Alloyed Ferrities* (*No.* 15). (C. E. Lacy and H. Gensamer, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-19.)
519	15859	U.S.A.	...	*The Action of Carbonate Catalysts in the Carburisation of Steel* (*No.* 17). (T. C. Fong and R. A. Ragatz, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-27.)
520	15868	U.S.A.	...	*The Strength of Heat Treated Alloy Steel Bolts* (*No.* 27). (G. Sachs and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-11.)
521	15869	U.S.A.	...	*The Emissivity of Molten Stainless Steels* (*No.* 28). (G. H. Goller, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-13.)
522	15877	U.S.A.	...	*An Optimum Silicon Range in Plain and 2.0 per cent. Chromium Cast Irons Exposed to Elevated Temperatures* (*No.* 36). (C. O. Burgess and R. W. Bishop, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-22.)
523	15878	U.S.A.	...	*Creep Strength, Stability of Microstructure and Oxidation Resistance of Cr.-Mo. and Cr.-8 Ni Steels* (*No.* 37). (R. F. Miller and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-22.)
524	15886	G.B.	...	*The Solidification and Cooling of Steel Ingots.* (E. F. Law and V. Harbord, Engineering, Vol. 156, No. 4,058, 22/10/43, pp. 338-340.)
525	15917	U.S.A.	...	1943 *Output of Steel May Exceed* 90,000,000 *Tons* (W. C. Hirsch, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 50, 82-83.)
526	16064	G.B.	...	*Stainless Steels. Machining Steels of High Resistance to Rust, Acid and Heat.* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, pp. 419-420.)
527	16072	G.B.	...	*Precipitation Effects in Mild Steel and Wrought Iron Pipe.* (T. H. Schofield, Engineering, Vol. 156, No. 4,059, 29/10/43, p. 358.)
528	16079	G.B.	...	*Weld Decay in Nickel-Chrome Ferrous Alloys.* (E. J. Raybould, Mechanical World, Vol. 114, No. 2,963, 15/10/43, p. 449.)
529	16163	G.B.	...	*Defective Steel—Decarburisation Traced to the Use of Damp Fuel.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 515.)
530	16202	G.B.	...	*Steels Containing Lead (Iron and Steel Institute Papers).* (Engineering, Vol. 156, No. 4,059, 29/10/43, p. 354.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
531	16220	Germany ...	*The Influence of Carbide Formers on the Yield Point of Steel at Room Temperature.* (R.T.P. Translation No. 1,972.) (K. Dies, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1907-1909.)
532	16240	G.B.	*A Survey of Electrical Sheet Steels for Power Plant and the Factors Affecting Their Magnetic Properties. (Abstract.)* (F. Brailsford, Journal of Inst. of Electrical Engineers, Vol. 90, No. 34, Pt. 1, Oct., 1943, pp. 450-452.)
533	16242	G.B.	*A Survey of Electrical Sheet Steels for Power Plant and the Factors Affecting Their Magnetic Properties.* (F. Brailsford, Journal of Inst. of Electrical Engineers, Vol. 90, No. 17, Part 2, Oct., 1943, pp. 307-326.)
534	16429	Germany ...	*The Notch and Weld Sensitivity of Structural Steels.* (Metallwirtschaft, Vol. 19, No. 46, 20/11/40, pp. 1091-1093.)
535	16474	G.B.	*Steel-Faced Plastic-Laminate Piercing Die.* (Plastics, Vol. 7, No. 78, Nov., 1943, p. 497.)
			Non-Ferrous Alloys.
536	15318	G.B.	*Copper-Lead Bearings (Lead Acts as Lubricant).* (Metal Industry, Vol. 63, No. 15, 8/10/43, p. 228.)
537	15321	G.B.	*Structural Changes in 70:30 Brass Strip as Effected by Cold Rolling and Annealing.* (M. Cook and T. L. Richards, Metal Industry, Vol. 63, No. 15, 8/10/43, pp. 231-234.)
538	15322	G.B.	*Trace Elements on High Purity Copper.* (Metal Industry, Vol. 63, No. 15, 8/10/43, p. 234.)
539	15324	G.B.	*Bronze Welding Rods.* (Metal Industry, Vol. 63, No. 15, 8/10/43, p. 236.)
540	15530	G.B.	*Directional Characteristics of Copper Strip.* (Engineering, Vol. 156, No. 4,056, 8/10/43, p. 294.)
541	15758	G.B.	*Structural Changes in 70:30 Brass Strip as Effected by Cold-Rolling and Annealing.* (M. Cook and T. Ll. Richards, Metal Industry, Vol. 63, No. 16, 15/10/43, pp. 247-248.)
542	15794	G.B.	*Density of Chill and Sand-Cast Bronzes.* (V. Kondic, Metal Industry, Vol. 63, No. 17, 22/10/43, pp. 261-263.)
543	15845	U.S.A. ...	*Dimensional Changes Encountered in Tube Sinking (for Copper and a Number of Copper Alloys) (No. 5).* (W. M. Baldwin and T. S. Howald, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-14.)
544	15977	G.B.	*Tin in White Metal Bearings.* (Mechanical World, Vol. 114, No. 2,962, 8/10/43, p. 421.)
545	15981	G.B.	*The Working of Yellow Brass.* (E. J. Raybould, Mechanical World, Vol. 114, No. 2,964, 22/10/43, pp. 470-471.)
546	16044	G.B.	*Manganese Bronze Melting.* (N. K. B. Patch, Metal Industry, Vol. 63, No. 18, 29/10/43, p. 278.)

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547	16077	G.B.	...	*Tin in White Metal Bearings.* (Mechanical World, Vol. 114, No. 2,963, 15/10/43, p. 447.)
548	16223	G.B.	...	*Conservation of Tin in Soft Solders.* (D. L. Colwell and W. C. Lang, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1921-1922.)
549	16420	Germany	...	*A New Zinc Casting Alloy.* (A. Burkhardt and others, Metallwirtschaft, Vol. 19, No. 45, 8/11/40, pp. 995-1001.)
550	16421	Germany	...	*The Ductility of Certain Zinc Alloys (Cold Working).* (A. Burkhardt, Metallwirtschaft, Vol. 19, No. 45, 8/11/40, pp. 1001-1004.)
551	16427	Germany	...	*A Simple Method for the Preparation of Metallographic Specimens of Copper and Brass.* (H. C. Muller, Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1085-1089.)
552	16482	G.B.	...	*Sand-Cast Copper-Silicon Alloys.* (Metal Industry, Vol. 63, No. 20, 12/11/43, pp. 310-311.)
				Plastics.
553	15540	G.B.	...	*Plasticizers and Their Applications.* (H. Barron, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 449-459.)
554	15544	G.B.	...	*New Standard Definitions and Designations for Plastics Produced in Germany.* (Plastics, Vol. 7, No. 77, Oct., 1943, p. 462.)
555	15764	G.B.	...	*Polyvinyl Acetate as an Adhesive.* (British Plastics, Vol. 15, No. 173, Oct., 1943, p. 257.)
556	15765	G.B.	...	*Plastics in the Building Trade.* (T. W. Kennedy, British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 261-265.)
557	15768	G.B.	...	*A New Plastics—Marvinol.* (British Plastics, Vol. 15, No. 173, Oct., 1943, p. 272.)
558	15769	G.B.	...	*Aircraft Plastics—Part II.* (W. Nichols, British Plastics, Vol. 15, No. 173, Oct., 1943, p. 273.)
559	15771	G.B.	...	*Tyre Casings of Plastics Cord.* (British Plastics, Vol. 15, No. 173, Oct., 1943, p. 291.)
560	15772	G.B.	...	*Education in Plastics.* (J. M. Edwards, British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 292-294.)
561	15763	G.B.	...	*A More Heat-Resistant Acrylate Material.* (H. W. Perry, British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 254-257.)
562	15776	G.B.	...	*Methods for Reducing Water Sensitivity of Polyvinyl Alcohol Coatings.* (British Plastics, Vol. 15, No. 173, Oct., 1943, p. 308.)
563	15923	U.S.A.	...	*A New Thermo-Plastic and Thermo-Setting Adhesive.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 74.)
564	16130	U.S.A.	...	*Plastics Parade—A Systematic Survey of Synthetic Products.* (A. F. Caprio, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 163-165.)
565	16142	U.S.A.	...	*Progress in Proteins (Survey of Derivative Plastic Products).* (J. M. Crowe, Scientific American, Vol. 169, No. 4, Oct., 1943, p. 160.)
566	16154	G.B.	...	*Sewing Plastic Fabrics.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 533.)

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				Rubber (Nat. and Syn.).
567	15536	Italy	...	*Processing of Polyvinyl Chloride.* (P. Paselli, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 433-435.)
568	15542	G.B.	...	*New Rubberlike Material for Inner Tubes in Cars* ("*Marvinol*"). (Plastics, Vol. 7, No. 77, Oct., 1943, p. 461.)
569	15767	G.B.	...	*A Vulcanisable Elastic Plastic—Plioflex.* (British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 270-271.)
570	15770	G.B.	...	*Flexible Plastics (Advantages of Plasticised Vinyl Chloride).* (J. R. Price, British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 284-291.)
571	16049	U.S.A.	...	*Rubber: Natural or Synthetic?* (E. N. Bressman, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 166-168.)
572	16114	G.B.	...	*Polyvinyl Chloride Cables.* (Electrician, Vol. 131, No. 3,411, 15/10/43, p. 384.)
573	16182	G.B.	...	*Polykol Insulated Conductors (Plasticised Polyvinyl Chloride).* (Electrician, Vol. 131, No. 3,412, 22/10/43, p. 407.)
574	16342	Germany	...	*Sheathing of Electrical Conductors with Polyvinyl Chlorides.* (Z.V.D.I., Vol. 86, No. 41-42, 17/10/42, pp. 629-632.) (H. Beck and A. Rehbock, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 288-290.)
575	16473	Germany	...	*Rubber, Guttapercha and Lead may be Replaced by Suitable Plastics.* (Kunststoffe, 1943, No. 33, p. 144.) (Plastics, Vol. 7, No. 78, Nov., 1943, p. 497.)
				Wood and Paper.
576	15421	U.S.A.	...	*Resin Impregnation of Wood.* (R. Casselman, Mechanical Engineering, Vol. 65, No. 10, Oct., 1943, pp. 737-738, 744.)
577	15689	G.B.	...	*A New Stop-Nut of Plywood.* (Engineer, Vol. 176, No. 4,579, 15/10/43, p. 305.)
578	15692	G.B.	...	*Conservation of Wood (Modern Timber Construction Techniques, etc.).* (A. G. K. Dietz, Engineer, Vol. 176, No. 4,579, 15/10/43, pp. 312-314.)
579	16129	U.S.A.	...	*New Wet Resistant Paper.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 162.)
580	16158	G.B.	...	*Scarfed Joints in Plywood.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 552-554.)
				Glass, Silver.
581	14946	G.B.	...	*Electrolytic Polishing of Silver.* (L. I. Gilbertson and O. M. Fortner, Metal Industry, Vol. 63, No. 14, 1/10/43, pp. 218-219.)
582	15431	G.B.	...	*Silver as a Bonding Material—Properties and Capabilities for a Wide Range of Work.* (Mechanical World, Vol. 114, No. 2,961, 1/10/43, pp. 393-394.)
583	16050	U.S.A.	...	*Foamglas as Insulating Material:* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 172.)

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584	16076	G.B.	*Silver in Electrical Applications.* (Mechanical World, Vol. 114, No. 2,963, 15/10/43, pp. 440-441.)
585	16135	U.S.A. ...	*Silver in Peace and War.* (F. D. Peters, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 151-153, 182.)
			Concrete, Cements.
586	16055	U.S.A. ...	*Concrete Curing—Special Laboratory for Testing Durability and Strength of Concrete.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 181.)
587	16468	G.B.	*Plastic Glues and Cements.* (D. L. Brown, Plastics, Vol. 7, No. 78, Nov., 1943, pp. 480-485.)
			General Properties, including Corrosion.
588	15082	G.B.	*New Methods for Examination of Corroded Metal (Abridged).* (F. H. Champion, Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 273-274.)
589	15084	G.B.	*Mechanical Properties of Metals.* (H. O'Neill, Engineering, Vol. 156, No. 4,055, 1/10/43, p. 276.)
590	14510	G.B.	*Mancoloy Alloys—Low Resistance with Low Temperature Coefficient Materials.* (Electronic Engineering, Vol. 16, No. 188, October, 1943, p. 214.)
591	15541	G.B.	*Incidental Corrosion of Metals by Plastics.* (Chem. Technik, 1942, Vol. 15, p. 226.) (Wiederholt and Groebe, Plastics, Vol. 7, No. 77, Oct., 1943, p. 460.)
592	15775	G.B.	*Factors Influencing Chemical Corrosion of Plastics.* (British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 306-308.)
593	15849	U.S.A. ...	*Intercrystalline Cohesion of Metals (Study of High Temperature Intercrystalline Failures) (No. 8).* (E. R. Parker, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-11.)
594	15850	U.S.A. ...	*Plastic Flow and Rupture of Metals (No. 9).* (C. Zener and J. H. Hollomon, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1/53.)
595	16028	G.B.	*Comparing Structures in Metals and Plastics.* (L. P. Dudley, Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 480-485.)
596	16350	G.B.	*The Atmospheric Corrosion of Copper. Some Factors which Influence the Formation of Protective Coatings.* (J. H. Wilkinson and W. S. Patterson, Journal of Society of Chemistry and Industry, Vol. 62, No. 10, October, 1943, pp. 167-170.)
597	16428	Germany ...	*Stress Corrosion of Structural Steels (Various Methods).* (Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1089-1090.)
598	16431	Germany ...	*Metal Production in the U.S.S.R.* (1927-1938). (K. G. Makuke, Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1096-1099.)
599	16481	G.B.	*Production of Metals in Wartime.* (Metal Industry, Vol. 63, No. 20, 12/11/43, p. 309.)

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			B. Fabrication.
			Welding.
600	15125	G.B.	*Fusion Welding of Wrought Aluminium Alloys.* (Sheet Metal Industries, Vol. 18, No. 198, October, 1943, p. 1792.)
601	15127	G.B.	*Rightward or Leftward Welding Technique? (Contd.).* (W. Heiz, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1801-1804.)
602	15355	G.B.	*The Welding of Wrought Aluminium Alloys.* (Aeroplane, Vol. 65, No. 1,689, 8/10/43, p. 405.)
603	15379	G.B.	*The Welding of Cast Iron: A Review.* (J. G. Pearce, The Institute of Welding, Quarterly Trans., Vol. 5, No. 4, October, 1942, pp. 150-163.)
604	15380	G.B.	*Report on a Preliminary Investigation of the Welding of Cast Iron.* (W. J. Driscoll, The Institute of Welding, Quarterly Trans., Vol. 5, No. 4, October, 1942, pp. 164-173.)
605	15381	G.B.	*Under Water Arc Welding.* (A. J. Hipperson, The Institute of Welding, Quarterly Trans., Vol. 5, No. 4, October, 1942, pp. 174-177.)
606	15383	U.S.A. ...	*American Tentative Standards and Recommended practices and Procedures for Spot Welding of Aluminium Alloys.* (The Institute of Welding, Quarterly Trans., Vol. 5, No. 4, October, 1942, pp. 181-198.)
607	15428	G.B.	*Control System for Spot Welding.* (Mechanical World, Vol. 114, No. 2,961, 1/10/43, p. 390.)
608	15757	G.B.	*Helium Arc Welding of Magnesium.* (Metal Industry, Vol. 63, No. 16, 15/10/43, p. 246.)
609	15882	G.B.	*Spot Welding of Heavy-Gauge Light-Alloy Sheets.* (Engineering, Vol. 156, No. 4,058, 22/10/43, pp. 327-328, 330.)
610	16124	G.B.	*Influence of Silicon on Welds in Cast Iron.* (Engineering, Vol. 156, No. 4,059, 29/10/43, p. 348.)
611	16141	U.S.A. ...	*Spot Welding Demands Clean Surfaces for Uniform Results.* (Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 159-160.)
612	16175	G.B.	*Combiner Forming and Cutting Operations in Welding.* (J. V. Thomas, Machinery, Vol. 63, No. 1,619, 21/10/43, p. 460.)
613	16232	G.B.	*Cable for Electric Arc Welding.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, p. 1980.)
614	16233	Switzerland ...	*A Welding Table with an Attached Exhauster.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, p. 1981.)
615	16480	G.B.	*Fabricating Welding Quality Elektron. III—Welding.* (W. K. B. Marshall, Metal Industry, Vol. 63, No. 20, 12/11/43, pp. 306-309.)
			Soldering and Brazing.
616	14944	G.B.	*Solder for Aluminium Bronze.* (Metal Industry, Vol. 63, No. 14, 1/10/43, p. 216.)

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617	15124	G.B.	... ...	*The Design of Parts for Copper Brazing.* (P. F. Tylecote, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1789-1791.)
618	15433	G.B.	... ...	*Soldering Methods—the Limitations of Soft Solders* (Mechanical World, Vol. 114, No. 2,941, 1/10/43, p. 400.)
				Joining and Bonding.
619	16058	U.S.A.	...	*Reanite Bonding Process (for Wood Plastics and Metals).* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 185.)
620	16162	G.B.	... ...	*A New Fusion Metal Bonding Process.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 358.)
				Drilling and Impact Extrusion.
621	15120	G.B.	... ...	*Drilling Thin Sheet Metal.* (Sheet Metal Industries, Vol. 18, No. 198, October, 1943, p. 1769.)
622	15122	G.B.	... ...	*A Test for Measuring Drawability of Deep Drawing Steels—I.* (F. W. Boulger and F. B. Dahle, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1777-1780.)
623	16032	G.B.	... ...	*Review of Impact Extrusion as Applied to Aluminium and Aluminium Alloys.* (Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 509-513.)
624	16270	G.B.	... ...	*Drilling Machines (Radial Drills, Cutting Fluids, Feeds and Speeds, Tap Drill Sizes, etc.).* (Machinist, Vol. 87, No. 16, Oct., pp. 97-112.)
				Plating, Spraying, etc.
625	15083	G.B.	... ...	*Surface Protection of Magnesium Alloys (Abridged).* (N. Parkinson and J. W. Cuthbertson, Engineering, Vol. 156, No. 4,055, 1/10/43, p. 274.)
626	15115	G.B.	... ...	*Thickness and Finishing of Chromium Plate on Tools and Gauges.* (Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1739-1740.)
627	15535	G.B.	... ...	*Metallizing Plastics (Contd.).* (E. E. Halls, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 429-432.)
628	15761	G.B.	... ...	*Electro-Deposition of Lead.* (M. B. Diggin, Metal Industry, Vol. 63, No. 16, 15/10/43, pp. 250-252.)
629	15858	U.S.A.	...	*A Study of the Nitriding Process. 1. Effect of Ammonia Dissociation on Case Depth and Structure (No. 16).* (C. F. Floe, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-24.)
630	15955	G.B.	... ...	*Restoring Worn Ways on Lathes by Metallic Spraying.* (Machinery, Vol. 63, No. 1,617, 7/10/43, p. 396.)
631	16225	G.B.	... ...	*Black Nickel Plating.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1940-1944.)
632	16228	G.B.	... ...	*Developments in Thermal Technique as Applied to Vitreous Enamelling Processes.* (J. Fallon, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1950-1952, 1966.)
633	16487	G.B.	... ...	*White Bronze Plating.* (Metal Industry, Vol. 63, No. 20, 12/11/43, p. 316.)

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			Milling, Grinding, Machining.
634	15121	G.B. ...	... *Trueing and Dressing Grinding Wheels.* (Sheet Metal Industries, Vol. 18, No. 198, October, 1943, p. 1768.)
635	16046	G.B. ...	... *Machining of Light Metals.* (Metal Industry, Vol. 63, No. 18, 29/10/43, p. 281.)
636	16075	G.B. ...	... *Improving Fatigue Strength of Machine Parts (Effects Produced by Working Hardening Processes, Machining and Heat Treatment).* (J. O. Almen, Mechanical World, Vol. 114, No. 2,963, 15/10/43, pp. 435-439.)
637	16176	G.B. ...	... *The Multiple-Cutter Thread Milling Process.* (J. G. Smith, Machinery, Vol. 63, No. 1,619, 21/10/43, pp. 461-464.)
638	16227	G.B. ...	... *Some Aspects of Metal Finishing.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1945-1947.)
			Drawing, Rolling and Pressing.
639	15112	G.B. ...	... *Rolling, Processing and Testing of Tinplate (Contd.).* (W. E. Hoare and E. S. Hedges, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1713-1722.)
640	15114	G.B. ...	... *The Principles of Lubrication in Modern Deep Drawing Practice (Contd.).* (H. A. H. Crowther and others, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1733-1738.)
641	15317	Germany	... *Light Metal Rolling Mills—I.* (From Aluminium, Vol. 24, pp. 20-25, 1942.) (W. Krämer, Metal Industry, Vol. 63, No. 15, 8/10/43, pp. 226-228.)
642	15756	G.B. ...	... *Light Metal Rolling Mills—II.* (W. Krämer, Metal Industry, Vol. 63, No. 16, 15/10/43, pp. 245-246.)
643	16080	G.B. ...	... *Pressing Magnesium Alloy Sheet (Plastic Working in Heated Dies).* (Mechanical World, Vol. 114, No. 2,963, 15/10/43, pp. 450-451.)
644	16218	G.B. ...	... *Rolling, Processing and Testing of Tinplate.* (W. E. Hoare and E. S. Hedges, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1895-1899.)
645	16222	G.B. ...	... *The Principles of Lubrication in Modern Deep Drawing Practice.* (H. A. H. Crowther and others, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1915-1920.)
646	16229	G.B. ...	... *A Test for Measuring Drawability of Deep Drawing Steels.* (F. W. Boulger and F. B. Dahle, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1959-1966.)
647	16430	Germany	... *Deep Drawing Test Method (Review).* (Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1093-1094.)
			Moulding and Casting.
648	14942	G.B. ...	... *Centrifugal Casting.* (Metal Industry, Vol. 63, No. 14, 1/10/43, p. 214.)

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649	15320	G.B.	*Magnesium Moulding Sands.* (C. Sanders, Metal Industry, Vol. 63, No. 15, 8/10/43, p. 230.)
650	15323	G.B.	*Centrifugal Casting of Aluminium.* (Metal Industry, Vol. 63, No. 15, 8/10/43, p. 234.)
651	15543	G.B.	*The Detection and Elimination of Some Common Faults in Plastic Mouldings.* (W. M. Halliday, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 467-476.
652	15426	G.B.	*Hot Tear Formation in Steel Castings.* (C. W. Briggs, Mechanical World, Vol. 114, No. 2,961, 1/10/43, pp. 379-381.)
653	15755	G.B.	*Sand Casting of Aluminium Alloys—I.* (Metal Industry, Vol. 63, No. 16, 15/10/43, pp. 242-244.
654	15766	G.B.	*Salvage of Porous Castings.* (British Plastics, Vol. 15, No. 174, Oct., 1943, p. 268.)
655	15773	Germany ...	*Working Methods for P.V.C. Material (Impact Compression Moulding and Injection Moulding.* (From Kunstoffe, Vol. 32, No. 137, 1942, pp. 137-141.) (G. Wick and A. Iloff, British Plastics, Vol. 15, No. 173, Oct., 1943, pp. 299-305.
656	15774	G.B.	*Heatronic Moulding.* (British Plastics, Vol. 15, No. 173, Oct., 1943, p. 305.)
657	15795	G.B.	*Sand Casting of Aluminium Alloys—II.* (Metal Industry, Vol. 63, No. 17, 22/10/43, pp. 264-266.)
658	15980	G.B.	*Casting High Duty Iron—Practical Methods for the Small Foundry.* (T. Roberts, Mechanical World, Vol. 114, No. 2,964, 22/10/43, pp. 467-468.)
659	16030	G.B.	*Gravity Dies of Light Alloys.* (Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 474-476.)
660	16161	G.B.	*Gravity Die Casting: Part III, Ageing and Solution Treatment.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 512-515.)

Heat Treatment.

661	14943	G.B.	*Technical Assistance in the Foundry.* (Metal Industry, Vol. 63, No. 14, 1/10/43, pp. 215-216.)
662	15077	G.B.	*The Maintenance of Basic Open-Hearth Furnace Linings.* (A. Jackson, Engineering, Vol. 156, No. 4,055, 1/10/43, p. 265.)
663	15623	Switzerland ...	*Heat Treatment of Replacement Steels in Electrically Heated Salt Bath.* (C. Albrecht, Schweizer Archiv., Vol. 8, No. 10, October, 1942, pp. 322-328.)
664	15856	U.S.A. ...	*The Effect of Heat Treatment and Carbon Content on the Work Hardening Characteristics of Several Steels (No. 14).* (J. H. Holloman, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-9.)
665	15864	U.S.A. ...	*Some Effects of Heat Treatment on Low Alloy Titanium Steels (No. 23).* (G. F. Coustock, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-14.)

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666	15865	U.S.A.	...	*Effect of Time, Temperature and Prior Structure on the Hardenability of Several Alloy Steels* (*No.* 24). (J. Welchner and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-29.)
667	15876	U.S.A.	...	*An Emergency Heat Resistant Alloy* (760°*C.*) (*No.* 35). (O. E. Harder and J. T. Gow, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-67.)
668	16048	G.B.	...	*Heat-Treating Aluminium Pressure Die Castings.* (Metal Industries, Vol. 63, No. 18, 29/10/43, p. 284.)
669	16219	G.B.	...	*The Uses of Controlled Atmospheres in the Metal Industries—Part II.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1900-1905.)

Quenching and Tempering.

670	14945	G.B.	...	*Tempering Hard-Rolled Aluminium.* (Metal Industry, Vol. 63, No. 14, 1/10/43, p. 217.)
671	15702	G.B.	...	*The Solidification and Cooling of Steel Ingots.* (E. F. Law and V. Harbord, Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 318-320.)
672	15842	U.S.A.	...	*Quenching and Hardenability of Hollow Cylinders* (*No.* 1). (J. H. Holloman and C. Zener, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-17.)
673	15843	U.S.A.	...	*Rates of Cooling in Blocks and Cylinders* (*No.* 2). (C. B. Post and W. H. Fenstermacher, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-20.)
674	15860	U.S.A.	...	*The Isothermal Transformation of Case-Carburized S.A.E.* 4,815 (*No.* 18). (J. R. Cruciger and J. R. Vilella, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-13.)
675	15861	U.S.A.	...	*Order Hardening: its Mechanism and Recognition* (*No.* 19). (D. Harker, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-26.)
676	15862	U.S.A.	...	*Interrupted Quench and Isothermal Treatments of Precipitation Hardening Alloys: Introductory Notes* (*No.* 20). (R. H. Harrington, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-14.)
677	15863	U.S.A.	...	*Bright Gas Quenching of S.A.E. X-4,130 and N.E.-8,630 Welded Aircraft Tubes* (*No.* 22). (W. Lehrer, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-31.)
678	15870	U.S.A.	...	*Quenching Rate Versus Graphite Formation in Prequenched White Cast Iron* (*No.* 29). (O. W. Simmons, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-11.)
679	15871	U.S.A.	...	*Pseudomorphs of Pearlite in Quenched Steel* (*No.* 30). (O. W. Ellis, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-12.)

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680	15872	U.S.A.	...	*Structural Changes During the Tempering of High Carbon Steel* (*No.* 31). (D. P. Antie and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-37.)	696
681	15873	U.S.A.	...	*The Effect of Carbon on the Tempering of Steel* (*No.* 32). (S. C. Fletcher and M. Cohen, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-26.)	697
682	15874	U.S.A.	...	*The Tempering of Nickel and Nickel-Molybdenum Steels* (*No.* 33). (D. P. Antis and M. Cohen, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-17.)	698
683	15875	U.S.A.	...	*Effect of Quenching Bath Temperature on the Tempering of High Speed Steel* (*No.* 34). (P. Gordon and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-30.)	699
				Powder Metallurgy.	700
684	14940	G.B.	...	*Is Powder Metallurgy Costly?* (H. W. Greenwood, Metal Industry, Vol. 63, No. 14, 1/10/43, pp. 213-214.)	701
685	15425	G.B.	...	*The Processing and Application of Metal Powders.* (C. S. Darling, Mechanical World, Vol. 114, No. 2,961, 1/10/43, pp. 375-378.)	702
686	15697	G.B.	...	*Iron Powder Metallurgy.* (Engineering, Vol. 156, No. 4,057, 15/10/43, p. 305.)	703
687	15753	G.B.	...	*The Powdered Metal Process for Moulding Parts.* (H. W. Perry, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 305-306.)	704
688	15778	G.B.	...	*The Measurement of the Fineness of Powdered Materials.* (P. J. Rigden, Chemistry and Industry, Vol. 62, No. 42, 16/10/43, pp. 393-396.)	705
689	15797	G.B.	...	*Manufacture of Metal Powders* (*Patent*). (Metal Industry, Vol. 63, No. 17, 22/10/43, p. 268.)	706
690	16034	G.B.	...	*Metal Powder Technology.* (Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 484-485.)	707
691	16056	U.S.A.	...	*New Micro-Hardness Tester for Powder Particles* (*Special Application to Powder Metallurgy*). (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 182.)	708
692	16063	G.B.	...	*Powder Metallurgy. The Physical Properties of Parts Made from Iron.* (F. V. Lenel, Automobile Engineer, Vol. 33, No. 441, Oct., 1943, pp. 415-418.)	709
				Machines and Tools.	710
693	15848	U.S.A.	...	*The Micro-Hardness Tester as a Metallurgical Tool* (*No.* 7). (C. B. Brodie, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-14.)	
694	15883	G.B.	...	*Internal Grinding and Facing Machine.* (Engineering, Vol. 156, No. 4,058, 22/10/43, p. 326.)	
695	16078	G.B.	...	*The Push-Through Blanking Tool.* (A. Keye, Mechanical World, Vol. 114, No. 2,963, 15/10/43, pp. 448-449.)	

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696	16231	G.B.	...	*The "Wimet" Tungsten Carbide-Tipped Riveting Punch.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, p. 1979.)
697	16275	U.S.A.	...	*Precision Tubing—New Double-Lap Flaring Tool for Tube Connections.* (Service Engineering, Vol. 1, No. 1, Winter, 1943, pp. 12-13.)
698	16497	U.S.A.	...	*The Use of Plastics for Drill Jigs and Stretch Moulds by the Brewster Aeronautical Corporation.* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 249.)

C. Inspection.

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699	15855	U.S.A.	...	*High Speed Testing of Mild Steel (No. 13).* (J. H. Holloman and C. Zener, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-9.)
700	15867	U.S.A.	...	*Notched Bar Tensile Test Characteristics of Heat Treated Low Alloy Steels (No. 26).* (G. Sachs and others, A.S.M. Preprints (25th Annual Convention), 18-22/10/43, pp. 1-53.)
701	15982	G.B.	...	*The Salt Spray Test: Its Use in Specifications Criticised.* (Mechanical World, Vol. 114, No. 2,964, 22/10/43, p. 471.)
702	16200	G.B.	...	*Rapid Test for Molybdenum in Steel.* (Engineering, Vol. 156, No. 4,059, 29/10/43, p. 350.)

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703	14939	G.B.	...	*Structural Changes in 70:30 Brass Strip as Effected by Cold-Rolling and Annealing (a Study by X-Ray and Microscopic Methods).* (M. Cook and T. L. L. Richards, Metal Industry, Vol. 63, No. 14, 1/10/43, pp. 210-212.)
704	15538	G.B.	...	*Non-Destructive Testing by X-Rays.* (R. H. Cooke, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 438-443.)
705	16026	G.B.	...	*X-Rays in the Light Alloy Foundry.* (F. R. Mansfield, Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 469-478.)
706	16179	G.B.	...	*X-Ray Crystallography.* (Electrician, Vol. 131, No. 3,412, 22/10/43, pp. 398-399.)

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707	15088	G.B.	...	*The Use of the Microscope in Particle Size Analysis.* (G. L. Fairs, Chemistry and Industry, Vol. 62, No. 40, 2/10/43, pp. 374-378.)
708	15792	G.B.	...	*The Electron Microscope: Its Application in Metallurgy.* (V. K. Zworykin, Metal Industry, Vol. 63, No. 17, 22/10/43, pp. 258-260.)
709	16045	G.B.	...	*The Electron Microscope: Its Application in Metallurgy (Concluded).* (V. K. Zworykin, Metal Industry, Vol. 63, No. 18, 29/10/43, pp. 279-281.)
710	16432	Germany	...	*Spectroscopic Determination of the Thickness of Metallic Coatings.* (Metallwirtschaft, Vol. 19, No. 48, 20/10/40, p. 1101.)

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			Quality Control.
711	15960	G.B.	*Statistical Quality Control in Practice.* (O. H. Rachwalsky, Machinery, Vol. 63, No. 1,617, 7/10/43, pp. 407-410.)
712	16073	G.B.	*Quality Control—An Examination of the Basic Principles of the New Inspection Technique.* (J. W. Parker, Mechanical World, Vol. 114, No. 2,963, 15/10/43, pp. 431-434.)
			INSTRUMENTS.
			Flight, Navigational.
713	15074	G.B.	*The Kodak Astrograph.* (Flight, Vol. 44, No. 1,814, 30/9/43, pp. 370-372.)
714	15385	Germany ...	*Requirements of an Acoustic Altimeter.* (Inter. Avia., No. 875, 7/7/43, p. 10.)
715	15486	U.S.A. ...	*Periscope Sextant.* (Der Flieger, Vol. 22, No. 5, May, 1943, p. 147.)
716	15517	U.S.A. ...	*New Computer Developed for Pilots and Navigators.* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 69.)
717	15716	U.S.A. ...	*Testing and Installing Liberator Instruments.* (C. W. Greaves, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 156-160.)
718	15925	U.S.A. ...	*Alternating Current Motors for Aircraft.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 76.)
719	16406	Germany ...	*German Development of Acoustic Landing Altimeters.* (Flight, Vol. 44, No. 1,820, 11/11/43, p. 531.)
720	16409	G.B.	*Aircraft Instruments.* (Flight, Vol. 44, No. 1,820, 11/11/43, pp. 534-539.)
			Photo-Electric, Electric.
721	15338	G.B.	*Viscosity at the Boiling Point—The Rheocker.* (J. H. Friend and W. D. Hargreaves, Philosophical Magazine, Vol. 34, No. 236, Sept., 1943, pp. 643-650.)
722	15345	G.B.	*The Dielecometer (Instrument for Dielectric Constant Determination).* (J. H. Jupe, Electrical Review, Vol. 133, No. 3,431, 27/8/43, pp. 271-273.)
723	15616	Switzerland ...	*Highly Accurate Electrical Calculating Machines, with Special Reference to a New Range Finder for A.A. Artillery (Verograph).* (F. Fischer, Schweizer Archiv., Vol. 8, No. 1, January, 1942, pp. 1-15.)
724	15629	Switzerland ...	*Photo-Electric Torsiograph.* (W. Spillmann, Schweizer Archiv., Vol. 8, No. 8, August, 1942, pp. 252-255.)
725	15743	G.B.	*Photo-Electric Photometers: Their Properties, Use and Maintenance (Discussion).* (J. S. Preston, Transactions of the Illuminating Engg. Soc., Vol. 8, No. 7, July, 1943, pp. 121-152.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Electronic, Magnetic.
726	14902	Switzerland ...	*The Fortin Magnetometer and its Employment for Water Divining.* (Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 47-48.)
727	16118	U.S.S.R. ...	*An Electronic Defectoscope.* (Gorelik and others, Metal Industries Review, Vol. 19, No. 7, July, 1939, pp. 67-70.)
			PRODUCTION.
			Organisation and Control.
728	14808	G.B.	*Capacity Planning.* (F. Whiteley, Machinery, Vol. 63, No. 1,614, 16/9/43, pp. 327-328.)
729	14958	U.S.A. ...	*Women who Work for Victory.* (W. G. Tuttle, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 657-660.)
730	14986	U.S.A. ...	*Scheduling of Changes in Aircraft Production.* (H. S. Martin, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-5.)
731	15081	G.B.	*An International Resources Organisation.* (Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 272-273.)
732	15329	G.B.	*Outworking and Production.* (Engineer, Vol. 176, No. 4,578, 8/10/43, pp. 258-259.)
733	15384	Switzerland ...	*Organisation of the German Munitions and War Economy.* (Inter. Avia., No. 875, 7/7/43, pp. 1-7.)
734	15393	U.S.A. ...	*U.S.A. Aircraft Production Figure.* (Inter. Avia., No. 875, 7/7/43, p. 17.)
735	15525	G.B.	*The Co-ordination of Abstracting.* (Engineering, Vol. 156, No. 4,056, 8/10/43, p. 292.)
736	15527	G.B.	*Out-Working in Practice.* (Engineering, Vol. 156, No. 4,056, 8/10/43, p. 296.)
737	15732	U.S.A. ...	*Production Planning Through Time Study Analysis.* (B. F. Smith, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 255-261.)
738	15998	G.B.	*Out-Working Aids Production.* (Flight, Vol. 44, No. 1,816, 14/10/43, p. 424.)
739	16037	G.B.	*Success of Out-Working.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 540.)
740	16062	G.B.	*Wartime Production—The Special Requirements of Wartime Control Systems.* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, p. 414.)
741	16092	G.B.	*Out-Working Adds to Production.* (Aeroplane, Vol. 65, No. 1,692, 29/10/43, p. 487.)
742	16235	G.B.	*Out-Working for Various Types of Assembly Work.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, p. 1,982.)
			Research and Training.
743	14888	G.B.	*Scientific Information.* (Engineering, Vol. 156, No. 4,054, 24/9/43, p. 252.)
744	14932	G.B.	*Our Debt to the Metallurgist.* (L. W. Low, Engineer, Vol. 176, No. 4,577, 1/10/43, pp. 264-265.)

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745	14934	Switzerland ...	*Laboratory for H.T. Research.* (Engineer, Vol. 176, No. 4,577, 1/10/43, pp. 269-272.)
746	14935	G.B.	*Scientific Information.* (J. G. Crowther, Engineer, Vol. 176, No. 4,577, 1/10/43, pp. 266, 272-273.)
747	14959	U.S.A. ...	*Training Employees for the War and After.* (R. O. Johnson, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 661-663.)
748	15076	G.B.	*Research: A General Survey—I.* (O. W. Roskill, Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 263-264.)
749	15189	G.B.	*Towards Better Engineering Education (Report by the Institution of Mechanical Engineers).* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, pp. 350-353, 368-372.)
750	15198	G.B.	*Engineering Economics (with Discussion).* (Sir Frank Gill, Institution of Electrical Engineers, Vol. 90, No. 33, Pt. 1, Sept., 1943, pp. 373-396.)
751	15200	G.B.	*Discussion on "A Critical Review of Education and Training for Engineers."* (Institution of Electrical Engineers, Vol. 90, No. 33, Pt. 1, Sept., 1943, pp. 417-424.)
752	15325	G.B.	*Australian Aeronautical Research.* (Engineer, Vol. 176, No. 4,578, 8/10/43, p. 277.)
753	15441	Germany ...	*Reports of the Aerodynamic Department of the Brunswick Technical High School (List of Titles).* (Flugsport, Vol. 35, No. 12, 18/8/43, p. 180.)
754	15500	G.B.	*Education for Industry (Review of Training Schemes at Bristol's, De Havilland's, etc.).* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 22.)
755	15523	G.B.	*Research: A General Survey—II.* (O. W. Roskill, Engineering, Vol. 156, No. 4,056, 8/10/43, pp. 282-283.)
756	15570	Germany ...	*Examples of Research Equipment of the Dornier Firm.* (W. Zuerl, Der Flieger, Vol. 22, No. 2, Feb., 1943, pp. 38-42.)
757	15593	Germany ...	*The Flight Research Department of Junkers (Review of Work During Last 20 Years).* (Der Flieger, Vol. 22, No. 4, April, 1943, pp. 102-105.)
758	15658	Switzerland ...	*Training of Aeronautical Engineers in Germany.* (Inter. Avia., No. 879-880, 9/8/43, pp. 10-11.)
759	15713	U.S.A. ...	*Langley Field Aerodynamic Laboratory (Photos).* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 126-127.)
760	15931	G.B.	*Co-operative Research in the Wire Industry.* (A. T. Adam, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 105-110, 126.)
761	15936	G.B.	*Applications of Physics in Chemical Industry (Use of Physical Instruments for Analysing and Testing Products).* (A. J. Mee, Journal of Scientific Instruments, Vol. 20, No. 9, Sept., 1943, pp. 137-141.)

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762	15937	G.B.	*The Physicist in the Chemical Industry.* (R. C. L. Bosworth, Journal of Scientific Instruments, Vol. 20, No. 9, Sept., 1943, pp. 142-145.)
763	15972	G.B.	*Laboratory Control in the Aero Engine Industry.* (S. A. J. Sage, Z.A.M.M., Vol. 114, No. 2,962, 8/10/43, pp. 403-405.)
764	15974	G.B.	*Engineering, Investigation (Evolution of Scientific Evidence, etc.).* (W. O. Andrews, Mechanical World, Vol. 114, No. 2,962, 8/10/43, pp. 408-411, 413.)
765	16014	G.B.	*"Remember the Past and Look to the Future" (Institution of Mechanical Engineers, Presidential Address) (Review of Engineering Progress).* (F. C. Lea, Engineer, Vol. 176, No. 4,581, 29/10/43, pp. 343-345.)
766	16019	G.B.	*Industry and Research—F.B.I. Report.* (Engineer, Vol. 176, No. 4,581, 29/10/43, pp. 352-353.)
767	16043	G.B.	*Industry and Research—F.B.I. Proposals for Future Organisation.* (Metal Industry, Vol. 63, No. 18, 29/10/43, pp. 277-278.)
768	16074	G.B.	*The New Goodyear Research Laboratory.* (Mechanical World, Vol. 114, No. 2,963, 15/10/43, p. 434.)
769	16110	G.B.	*H.T. Testing—Details of New Research Laboratory at Zurich.* (Electrician, Vol. 131, No. 3,407, 17/9/43, pp. 273-275.)
770	16156	G.B.	*The Training of Unskilled Labour—Part I.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 536-539.)
771	16203	G.B.	*Engineering, Past and Future.* (F. C. Lea, Engineering, Vol. 156, No. 4,059, 29/10/43, pp. 355-356.)
772	16221	G.B.	*Industrial Research.* (Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1910-1912.)
773	16338	G.B.	*Educational Reconstruction (III).* (Nature, Vol. 152, No. 3,860, 23/10/43, pp. 455-458.)
774	16352	G.B.	*Industrial Achievement and Training.* (T. J. Drakeley, Chemistry and Industry, Vol. 62, No. 45, 6/11/43, pp. 423-424.)
775	16355	G.B.	*Invention and its Relation to Industry.* (E. W. Moss, Engineer, Vol. 176, No. 4,582, 5/11/43, p. 365.)
776	16357	G.B.	*Engineers and National Planning—No. 1.* (D. Anderson, Engineer, Vol. 176, No. 4,582, 5/11/43, pp. 367-368.)
777	16377	G.B.	*Research: A General Survey.* (O. W. Roskill, Engineering, Vol. 156, No. 4,060, 5/11/43, p. 364.)
778	16378	G.B.	*Engineering, Past and Future.* (F. C. Lea, Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 365-366.)
779	16385	G.B.	*Inventors and Employers.* (Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 375-376.)

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			Aircraft Production Methods.
780	15067	France ...	*The French Aircraft Industry (Review of French Aircraft Types).* (V. L. Gruberg, Flight, Vol. 44, No. 1,814, 30/9/43, pp. 359-362.)
781	15118	G.B. ...	... *The Development of Aircraft Detail Fittings—Part II: Sheet Metal Work.* (W. Cookson, Sheet Metal Industries, Vol. 18, No. 198, Oct., 1943, pp. 1765-1767, 1770.)
782	15126	G.B. ...	... *Welding and Other Assembly and Fabrication Methods Used on Eight German Aircraft Types.* (Sheet Metal Industries, Vol. 18, No. 198, Oct., 1943, pp. 1793-1800.)
783	15220	Germany	... *Direct Pneumatic Hammer Riveting in Aircraft Production.* (From Maschinenbau, Der Betrieb, Vol. 21, No. 8, Aug., 1942, pp. 337-340.) (F. Wilde, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 196-197.)
784	15505	G.B. ...	... *Production of Aircraft (Select Committee's Proposals).* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 33.)
785	15519	U.S.A.	... *New Plywood Adhesive Developed by Du Pont.* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 75.)
786	15520	U.S.A.	... *New Lightweight Plastic Aircraft Flooring (Panelyte).* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 80.)
787	15602	Germany	... *Hand Milling of Cut-outs in Fuel Tanks (Template Prevents Cut-out Section from Dropping Inside).* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 112.)
788	15605	Germany	... *Mass Production of He. 111 (Photographs).* (Signal, No. 13, July, 1943, pp. 34-37.)
789	15615	Germany	... *American Methods of Propeller Blade Manufacture.* (Der Flieger, Vol. 22, No. 3, March, 1943, p. 83.)
790	15677	U.S.A.	... *Aircraft and Engine Production by Ford Plants.* (Inter. Avia., No. 876-877, 19/7/43, pp. 14-15.)
791	15719	U.S.A.	... *Widespread Use of Conveyorized Assembly Systems.* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 182-183.)
792	15723	U.S.A.	... *Lofting Problems of Streamline Bodies (Part 16).* (C. M. Hartley and R. A. Liming, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 197-202, 298.)
793	15726	U.S.A.	... *Scale Installations for Weighing Aircraft.* (L. R. Hackney, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 219-227.)
794	15733	U.S.A.	... *Directory of Equipment for Handling Parts and Materials Used in Aircraft (Including Addresses of Manufacturers).* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 281-293.)
795	15741	U.S.A.	... *New Curtiss Wright Scribing Tool Speeds Fuselage Production.* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 403.)
796	15907	U.S.A.	... *Canada's Aircraft Industry.* (Autom. and Aviation Ind., Vol 89, No. 5, 1/9/43, pp. 25, 86.)

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797	15909	U.S.A.	...	*Magnetic Particle Inspection at Lockheeds.* (R. Mitchell and C. Geist, Autom. and Aviation Ind., Vol 89, No. 5, 1/9/43, pp. 26-29, 56.)
798	15915	U.S.A.	...	*Modern Production Methods for the Manufacture of Filters for the Automotive and Aircraft Industries.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 43, 86.)
799	15947	G.B. ...	...	*Forming Extruded Components for Aircraft.* (Machinery, Vol. 63, No. 1,618, 14/10/43, pp. 438-439.)
800	15957	G.B. ...	...	*The Manufacture of Bomber Engines.* (Machinery, Vol. 63, No. 1,617, 7/10/43, pp. 400-403.)
801	15959	G.B. ...	...	*Centrifugal Casting Speeds Up Aero Engine Production.* (Machinery, Vol. 63, No. 1,617, 7/10/43, p. 406.)
802	16038	G.B. ...	...	*Consolidated Vultee Apply Moving-Line Assembly System.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 541-543.)
803	16103	G.B. ...	...	*Production of the Halifax Bomber at Handley Page.* (Sir F. Handley Page, Aeroplane, Vol. 65, No. 1,692, 29/10/43, p. 505.)
804	16152	G.B. ...	...	*The Horsa Glider: Part II—Building the Outer Wing Panels, etc.* (W. E. Goff, Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 518-529.)
805	16153	G.B. ...	...	*Packard Built Merlins (Adoption of the Conveyor System).* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 530-533.)
806	16157	G.B. ...	...	*Inspection of Aircraft Parts (Avoidance of Bottlenecks).* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 510.)
807	16225	G.B. ...	...	*The Development of Aircraft Detail Fittings—Part III.* (W. Cookson, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1941-1944.)
808	16286	U.S.A.	...	*Super Aluminium Alloys for Aircraft Structures—Part I.* (K. R. Jackman, Aviation, Vol. 42, No. 8, August, 1943, pp. 154-163, 297-305.)
809	16291	U.S.A.	...	*Wing Chord Divider Beam (for Laying Out Wing Contours for Specified Chord Lengths).* (Aviation, Vol. 42, No. 8, August, 1943, p. 181.)
810	16293	U.S.A.	...	*Sheet-Spring Fasteners Speed Aircraft Assembly.* (H. White, Aviation, Vol. 42, No. 8, August, 1943, pp. 183-185, 294-295.)
811	16294	U.S.A.	...	*Exploded View Showing Sub-Assemblies of the Cessna AT-17 Bobcat.* (Aviation, Vol. 42, No. 8, August, 1943, p. 187.)
812	16300	U.S.A.	...	*Noorduyn's Airframe Repair Plant for "Harvard" Trainers and "Norseman" Transports (Line-Assembly Methods).* (Aviation, Vol. 42, No. 8, August, 1943, pp. 215, 309-311.)
813	16303	U.S.A.	...	*Propeller Blade Buffing Fixture.* (Aviation, Vol. 42, No. 8, August, 1943, p. 221.)
814	16322	U.S.A.	...	*Production Problems of the Coronado Flying Boat.* (E. P. Meyers, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 38-41, 60-62.)

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815	16360	U.S.A. ...	*Mass Production Methods Used at Bell Plant to Build Airacobras.* (J. Geschelin, Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 22-26, 87-90.)
816	16361	U.S.A. ...	*Possibilities of Furnace Brazing in Aircraft Production.* (H. D. Samuel, Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 28-29, 64.)
817	16345	U.S.A. ...	*Arc Welding of Magnesium Aircraft Structures.* (Metal and Alloys, Vol. 18, No. 2, August, 1943, pp. 302-307.) (V. H. Pavlecka and J. K. Northrop, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 294-295.)
818	16365	U.S.A. ...	*All Half-Tac Assembly Operations at White Plant on Mass Production Basis.* (J. Geschelin, Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 36-38, 90.)

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819	15144	U.S.A. ...	*New Electrical Equipment for Hardening Engine Parts (Induction Heating).* (Scientific American, Vol. 169, No. 3, September, 1943, pp. 130-131.)
820	15159	G.B.	*Fairey Bomb-Loading Device.* (Aeronautics, Vol. 9, No. 2, September, 1943, pp. 58-59.)
821	15468	G.B.	*Radial Aero Engine Production in Australia.* (J. Piggott, Journal of the Institution of Production Engineers, Vol. 22, No. 9, September, 1943, pp. 281-311.)
822	15811	U.S.A. ...	*Gun Tube Manufacture.* (Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 412.)
823	15921	U.S.A. ...	*No-Sip Screw has Two Different Threads.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 46, 58.)
824	15922	U.S.A. ...	*New Dardelet Thread Tests.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 54.)
825	15942	G.B.	*Production Line Drilling and Tapping Fuse Bodies.* (Machinery, Vol. 63, No. 1,618, 14/10/43, pp. 428-434.)
826	15948	G.B.	*Operations in Building Marine Diesel Engines (Extensive Use of Jigs and Special Fixtures).* (Machinery, Vol. 63, No. 1,616, 30/9/43, pp. 365-371.)
827	15949	G.B.	*Should the Whitworth Thread be Modified?* (Machinery, Vol. 63, No. 1,616, 30/9/43, p. 373.)
828	15954	G.B.	*The Quantity Production of Dies for Machine Gun Cartridge Cases.* (Machinery, Vol. 63, No. 1,617, 7/10/43, pp. 393-396.)
829	16060	U.S.A. ...	*Pressed Pistons—Control Methods Employed by Specialloid, Ltd.* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, pp. 397-404.)
830	16126	U.S.A. ...	*Production of Fibre Cans.* (R. P. Bigger, Industrial Engineering and Chemistry, Vol. 21, No. 17, 10/9/43, pp. 1436-1439.)
831	16171	G.B.	*The Production of Parts for the Jerrican.* (Machinery, Vol. 63, No. 1,619, 21/10/43, pp. 449-454.)

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832	16281	U.S.A. ...	*The Manufacture of Service Tools.* (Service Engineering, Vol. 1, No. 2, Spring, 1943, pp. 13-14.)
833	16483	G.B. ...	... *Cartridge Case Defects.* (Metal Industry, Vol. 63, No. 20, 12/11/43, p. 311.)
834	16499	G.B. ...	... *Production of the Bristol Hercules Engine.* (Aeroplane, Vol. 65, No. 1,694, 12/11/43, p. 551.)
			General Production Methods.
835	15086	G.B. ...	... *Marking Methods and War Production (Contd.).* (A. Throp, Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 278-279.)
836	15117	G.B. ...	... *Industrial Metal Finishing. Part III—Polishing Processes.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, pp. 1759-1763.)
837	15132	U.S.A.	... *Munitions Storage.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 108.)
838	15470	G.B. ...	... *A Quick Method of Cleaning Settling Tanks of Grinding Machines (Technical Bulletin, Sept.,* 1943). (Journal of the Institution of Production Engineers, Vol. 22, No. 9, September, 1943, pp 67-69.)
839	15471	G.B. ...	... *Investigating Unsatisfactory Die Casting Production (Technical Bulletin, Sept.,* 1943). (B. H. Dyson, Journal of the Institution of Production Engineers, Vol. 22, No. 9, September, 1943, pp. 69-71.)
840	15548	Germany	... *Method of Taking Out Buckles in Thin Metal Tubing (Spherical Piston Under Hydraulic Pressure).* (Der Flieger, Vol. 22, No. 3, March, 1943, p. 82.)
841	15558	Germany	... *Removing Insulation from Wires (Automatic Stripping).* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 211-212.)
842	15604	Germany	... *Lead Hand Flap for Beating Electron Sheet to Shape (Used in Conjunction with Gas Flame).* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 112.)
843	16035	G.B. ...	... *Defective Castings and Forgings Detected by Sound.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 539.)
844	16036	G.B. ...	... *Rivets Tested by Light.* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, p. 539.)
845	16039	G.B. ...	... *Diamond Lock Riveting—Increasing Production without Increase of Floor Space.* (G. G. Williams, Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 544-546.)
846	16051	U.S.A.	... *Mass Spectrometer Speeds Production Testing in Synthetic Rubber Plants (Testing Butadiene Molecules).* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 172.)
847	16088	U.S.A.	... *Use of Pliofilm Cover for Shipping Aircraft to War Front.* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 71.)

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848	16215	Germany ...	*Improved Electrical Connection Diagram Speeds Up Manufacturing Process.* (From E.T.Z., Vol. 63, No. 41-42, 22/10/42, pp. 481-486.) (A. Windmueller, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 223-225.)
849	16224	G.B.	*Overcoming the Problems of Degreasing and Cleaning.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1935-1940.)
850	16230	G.B.	*Assembling Metal Components—Factors Governing the Choice of Methods and Processes.* (J. L. Miller, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1971-1979.)
851	16287	U.S.A. ...	*Cutting Costs on Perforating Dies (Use of Cerromatrix).* (E. H. Ruder, Aviation, Vol. 42, No. 8, August, 1943, pp. 165-167, 314-315.)
852	16366	U.S.A. ...	*Kolene Metal Cleaning and "Tinning" Process for Bearings.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 40, 72.)
			Machines, Tools, etc.
853	15438	Germany ...	*Spring Ejectors for Removing Pressed Parts from Dies (Arado).* (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 170-171.)
854	15439	Germany ...	*Magnetic Clamp for Holding Drill Against Sheet Metal.* (Junkers, Flugsport, Vol. 35, No. 12, 18/8/43, p. 171.)
855	15469	G.B.	*From the Pneumatic Tool Repair Bench (Technical Bulletin, September, 1943).* (H. S. Broom, Journal of the Institution of Production Engineers, Vol. 22, No. 9, September, 1943, pp. 58-67.)
856	15472	G.B.	*Four-Way Loading of the Hydraulic Press (Technical Bulletin, September, 1943).* (Journal of the Institution of Production Engineers, Vol. 22, No. 9, September, 1943, p. 72.)
857	15479	Germany ...	*Etching Tool for Marking Contours of Templates (Notifies Accidental Damage and Wear).* (Junkers, Der Flieger, Vol. 22, No. 5, May, 1943, p. 142.)
858	15549	Germany ...	*Automatic Thread Testing and Sorting Machine for Studs.* (Der Flieger, Vol. 22, No. 3, March, 1943, pp. 82-83.)
859	15560	Germany ...	*Suction Pad Indicators for Checking Profile Contours Against Loft Diagrams (Junkers).* (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 212-213.)
860	15561	Germany ...	*Instrument for the Rapid Determination of Shaft Length for Various Types of Rivet Heads.* (Junkers, Der Flieger, Vol. 22, No. 7, July, 1943, p. 213.)
861	15574	Germany ...	*Junkers Metal Working Tools (Beading and Off-Setting).* (Der Flieger, Vol. 22, No. 2, Feb., 1943, pp. 56-57.)

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862	15575	Germany ...	*Junkers Tool Support for Cutting and Radiusing Operations on the Lathe.* (Der Flieger, Vol. 22, No. 2, Feb., 1943, p. 56.)
863	15599	Germany ...	*Slide Rule for the Rapid Determination of Sheet Metal Weights.* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 111.)
864	15600	Germany ...	*Roller Clamps for Applying Tension to Sheet Metal.* (Junkers, Der Flieger, Vol. 22, No. 4, April, 1943, p. 112.)
865	15603	Germany ...	*Hand Tool for Recessing Plate Edges (Pat.* 675,973). (Der Flieger, Vol. 22, No. 4, April, 1943, p. 112.)
866	15614	Germany ...	*Device for the Flame Hardening of Long Shafts (Pat.* 729,476). (Gas und Electro Warme, Vol. 1,943, No. 3, June, 1943, p. 63.)
867	15736	U.S.A. ...	*Fixture Developed at General Electric for Quick and Accurate Wire-Bending.* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 391.)
868	15740	U.S.A. ...	*Modified Indicating Gauge for Checking Finished Dimensions More Quickly and Accurately.* (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 397-398.)
869	15887	U.S.A. ...	*Autoclaves for Pressure-Temperature Reactions.* (D. B. Gooch, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 927-946.)
870	15906	U.S.A. ...	*Big Plant Expansion at Ohio Crankshaft Co. (Survey of Equipment and Processes Employed).* (J. Geschelin, Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 20-24.)
871	15919	U.S.A. ...	*Riehle Testing Machine for Parachute Web.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 44.)
872	15950	G.B.	*Automatic Screw Machine Work on Munition Parts.* (Machinery, Vol. 63, No. 1,616, 30/9/43, pp. 374-379.)
873	16208	Germany ...	*Sheet Metal Stitching Machine.* (From Workstatt und Betrieb, Vol. 75, No. 8, 1942, pp. 186, 188.) (Engineers' Digest, Vol. 4, No. 8, August, 1943, p. 235.)
874	16262	G.B.	*Hob Inspection Machine for High Speed Reduction Gears.* (Machinist, Vol. 87, No. 16, 7/8/43, pp. 83-85.)
875	16265	G.B.	*Device for Holding Overlapping Sheets of Metal in an Upright Position.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 87.)
876	16379	G.B.	*Electric Vulcaniser and Press for the Repair of Damaged Rubber Conveyor Belts.* (Engineering, Vol. 156, No. 4,060, 5/11/43, p. 366.)
877	16448	Germany ...	*Appliance for Testing Plug in Cardan Joints (Junkers).* (Flugsport, Vol. 35, No. 13, 15/9/43, p. 185.)
878	16449	Germany ...	*Flanging Tool for Sheet Metal Stringers (Junkers).* (Flugsport, Vol. 35, No. 13, 15/9/43, pp. 185-196.)

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879	16450	Germany	...	*Draughtsman's Template for Perspective Drawings.* (Flugsport, Vol. 35, No. 13, 15/9/43, p. 186.)
				Salvage, Swarf.
880	15742	U.S.A.	...	*Vega Develops Machine for Salvaging Welding Electrode Stubs.* (Aero Digest, Vol. 43, No. 2, August, 1943, p. 407.)
881	15961	G.B.	...	*Salvage of Broken Drills.* (Machinery, Vol. 63, No. 1,617, 7/10/43, p. 410.)
882	16155	G.B.	...	*Swarf Removal (Pneumatic Swarf Removal Unit).* (Aircraft Production, Vol. 5, No. 61, Nov., 1943, pp. 534-535.)
883	16324	U.S.A.	...	*German Process Compacts Steel "Swarf" by Auto Combustion.* (R.T.P.3 Translation.) (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 82-83.)
				Workers' Welfare.
884	15079	G.B.	...	*Glass Filters for Air Conditioning.* (Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 266-267.)
885	15539	G.B.	...	*Fire Hazards in the Plastics Industry—II (Preventive Methods).* (H. R. Fleck, Plastics, Vol. 7, No. 77, Oct., 1943, pp. 446-448, 459.)
886	15762	G.B.	...	*Industrial Health.* (Metal Industry, Vol. 63, No. 16, 15/10/43, p. 241.)
887	15975	G.B.	...	*Fire Protection in the New Factory.* (J. V. Brittain, Mechanical World, Vol. 114, No. 2,962, 8/10/43, pp. 412-413.)
888	15986	G.B.	...	*Accident Prevention, Working Conditions and Welfare Work in Factories.* (Mechanical World, Vol. 114, No. 2,964, 22/10/43, pp. 482-486.)
889	15993	G.B.	...	*Memorandum on the Prevention of Industrial Dermatitis. Dermatitis from Glues Used in Aircraft Construction.* (Form 331, Feb., 1943, H.M.S.O.) (Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 114.)
890	16132	U.S.A.	...	*New Method for Removing Oil Smoke and Mist in Machine Shops.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 168.)
891	16139	U.S.A.	...	*Taking Dust Out of Industry.* (E. L. Cady, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 157-159.)
892	16183	G.B.	...	*Electrical Accidents—Precautions Necessary in Magnesium and Aluminium Production.* (Electrician, Vol. 131, No. 3,412, 22/10/43, pp. 411-412.)
				TRANSPORT.
				Army Vehicles, Tanks.
893	16059	G.B.	...	*The Karrier K6.* (Automobile Engineer, Vol. 33, No. 441, Oct., 1943, pp. 387-396.)
894	16273	U.S.A.	...	*Simplicity that Saves Critical Time, Material and Machines in Tank Maintenance.* (Service Engineering, Vol. 1, No. 1, Winter, 1943, pp. 4-5.)

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895	16359	Germany ...	*German Military Tractor with Motor Cycle Steering (Kettenkrad).* (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 21.)
896	16372	U.S.A. ...	*Morris Mark I Light Reconnaissance Car (Photo).* (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 48.)
			Locomotives, Tractors.
897	14962	U.S.A. ...	*Future Diesel Road Locomotives (Discussion).* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 673-675.)
898	15613	Germany ...	*Electrically Heated Steam Locomotive in Switzerland.* (Gas und Electro Warme, Vol. 1,943, No. 3, June, 1943, p. 61.)
899	15785	U.S.A. ...	*Pneumatic Tyres for Farm Tractors and Implements.* (E. F. Brunner, S.A.E. Preprint, 23/9/43, pp. 1-9.)
900	15786	U.S.A. ...	*A Method of Predicting Tractor Bearing Life.* (John Borland, S.A.E. Preprint, 23-24/9/43, pp. 1-10.)
901	16085	U.S.A. ...	*New Power Industrial Truck for Loading Aircraft.* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 36.)
902	16373	U.S.A. ...	*Hydraulic Valve Lifter on the M.-M. Tractor Engine.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 60-61.)
			Trolley Buses, Cars.
903	15528	G.B.	*Automobile Research (Annual Report of I.A.E.).* (Engineering, Vol. 156, No. 4,056, 8/10/43, p. 296.)
904	15688	G.B.	*Threshold of a New Era in Transport.* (Sir William V. Wood, Engineer, Vol. 176, No. 4,579, 15/10/43, p. 305.)
905	15699	G.B.	*Automobile Research (I.A.E. Annual Report).* (Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 307-308.)
906	16031	G.B.	*Aluminium in Automobiles.* (Light Metals, Vol. 6, No. 69, Oct., 1943, pp. 500-508.)
907	16236	G.B.	*Electric Transport (Trolley Bus, Battery Vehicles, etc.).* (Automobile Engineer, Vol. 33, No. 442, Nov., 1943, pp. 425-468.)
			WIRELESS AND ELECTRICITY.
			Aircraft Radio.
908	15057	G.B.	*Rockets and Radio.* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, pp. 372-373.)
909	16306	U.S.A. ...	*Radio Static Neutraliser (New Device).* (Aviation, Vol. 42, No. 8, August, 1043, p. 229.)
910	15390	U.S.A. ...	*American Radio Location Equipment (Radar).* (Inter. Avia., No. 875, 7/7/43, pp. 14-15.)
911	15414	U.S.A. ...	*The Radio Engineer in Psychological Warfare (Expansion of Short-Wave Facilities).* (R. C. Corderman, Procs. of the I.R.E., Vol. 31, No. 9, September, 1943, pp. 510-514.)

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912	15415	U.S.A. ...	*The Radio Engineer in the Navy.* (C. F. Holden, Procs. of the I.R.E., Vol. 31, No. 9, September, 1943, pp. 517-519.)
913	15789	Switzerland ...	*The Wireless Transmission of Reconnaissance Results.* (W. Guldimann, Flugwehr und Technik, Vol. 5, No. 8, August, 1943, pp. 205-206.)
914	16254	G.B.	*Radio Insignia in the Forces.* (Wireless World, Vol. 49, No. 10, Oct., 1943, pp. 293-295.)
			General Radio and Television.
915	15095	Germany ...	*Wired Television.* (F. Ring, T.F.T., Vol. 29, No. 6, June, 1940, pp. 172-178.)
916	15096	Germany ...	*High Frequency Distortions in Wired Broadcastings.* (W. Klein, T.F.T., Vol. 29, No. 11, November, 1940, pp. 331-334.)
917	15097	Germany ...	*A Recording Phase Meter for Reception Observations in Short, Medium and Long Wave Ranges.* (J. Grosskopf, T.F.T., Vol. 29, No. 11, November, 1940, pp. 334-339.)
918	15210	G.B.	*Wide-Range R.-C. Oscillator.* (T. A. Ledward, Wireless World, Vol. 49, No. 9, Sept., 1943, pp. 263-265.)
919	15412	U.S.A. ...	*The Radio Sonde.* (W. H. Pickering, Procs. of the I.R.E., Vol. 31, No. 9, September, 1943, pp. 479-485.)
920	15413	U.S.A. ...	*Some Aspects of Radio Reception at Ultra-High Frequency. Part II—Admittances and Fluctuation Noise of Tubes and Circuits. Part III—The Signal-to-Noise Ratio of Radio Receivers.* (E. W. Herold and L. Malter, Procs. of the I.R.E., Vol. 31, No. 9, September, 1943, pp. 491-510.)
921	15901	G.B.	*Factory Testing of Radio Equipment (Discussion).* (Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 145-146.)
922	15903	G.B.	*Discussion on "Factors Determining the Choice of Carrier Frequency for an Improved Television System."* (Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 147-148.)
923	16071	G.B.	*International Telecommunications.* (Sir A. S. Angwin, Engineering, Vol. 156, No. 4,059, 29/10/43, p. 357.)
924	16255	G.B.	*Long Distance Short-Wave Transmission.* (T. W. Bennington, Wireless World, Vol. 49, No. 10, Oct., 1943, pp. 297-300.)
925	16257	G.B.	*Radio Data Charts—II (Frequency and Wave Length).* (J. McG. Sowerby, Wireless World, Vol. 49, No. 10, Oct., 1943, pp. 304-305.)
			Valves, Rectifiers, etc.
926	15131	U.S.A. ...	*Rapid Sorting of Filament Wires for High Power Radio Tubes.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 105.)

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927	15209	G.B.	*Use of Valves and Valve Ratings.* (J. R. Hughes, Wireless World, Vol. 49, No. 9, Sept., 1943, pp. 256-259.)
928	15211	G.B.	*American Valve Designations.* (Wireless World, Vol. 49, No. 9, Sept., 1943, p. 271.)
929	15902	G.B.	*Discussion on "Metal Rectifiers and Their Application to Radio and to Measurements."* (Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 146-147.)
930	16258	G.B.	*Use of Valves (Safety Precautions to Prevent Overrunning).* (J. R. Hughes, Wireless World, Vol. 49, No. 10, Oct., 1943, pp. 306-309.)

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931	12723	Germany ...	*The Experimental Solution of Two Dimensional Potential Problems by Electrical Dipole Fields.* (R. Sonntag, Ing. Archiv., Vol. 14, No. 1, 1943.)
932	14739	G.B.	*Non-Corrosive Flux for Electrical Work.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 292.)
933	14830	G.B.	*Factors Affecting the Accuracy of Electrical Methods of Measuring Temperature.* (Mechanical World, Vol. 114, No. 2,958, 10/9/43, pp. 285-286.)
934	14866	U.S.A. ...	*Improved Salt Bridge for Polarographic and Potentiometric Measurements.* (D. N. Hume and W. E. Harris, Industrial and Engineering Chemistry (Analyt. Edition), Vol. 15, No. 7, 10/7/43, p. 465.)
935	15093	Germany ...	*Measurement of Ground Conductivity.* (J. Grosskopf and K. Vogt, T.F.T., Vol. 31, No. 1, January, 1942, pp. 22-23.)
936	15094	Germany ...	*On the Measurement of Ground Conductivity.* (J. Grosskopf and K. Vogt, T.F.T., Vol. 29, No. 6, June, 1940, pp. 164-172.)
937	15212	G.B.	*Calculating Coupling Coefficients. Useful Formulæ for Finding the Optimum Spacing of I.F. Transformers Windings.* (S. W. Amos, Wireless World, Vol. 49, No. 9, Sept., 1943, pp. 272-273.)
938	15332	U.S.S.R. ...	*On the Thermal Conductivity of Dielectrics at Temperatures Lower Than That of Debye.* (I. Pomeranchuk, Journal of Physics, Vol. 6, No. 6, 1942, pp. 237-250.)
939	15333	U.S.S.R. ...	*On the Theory of Phase Transitions of the Second Order. II. Phase Transitions of the Second Order in Alloys.* (E. N. Lifshitz, Journal of Physics, Vol. 6, No. 6, 1942, pp. 251-263.)
940	15636	Switzerland ...	*Negative Resistances* (3). (W. Arnrein, Schweizer Archiv., Vol. 8, No. 5, May, 1942, pp. 152-157.)
941	15639	Switzerland ...	*Negative Resistances (Semi-Conductors with Falling Characteristics up to Frequency of 3,000/sec).* (W. Arnrein, Schweizer Archiv., Vol. 8, No. 3, March, 1942, pp. 85-89.)
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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
943	15898	G.B.	*Wave Guides in Electrical Communication.* (J. Kemp, Journal of the Inst. of Electrical Eng., Vol. 90, No. 11, Part 3, Sept., 1943, pp. 90-114.)
944	15899	G.B.	*Graphical-Vector Solution and Study of the Coil-Loaded Line.* (A. K. Robinson, Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 115-128.)
945	16112	G.B.	*Difference Between Amplitude and Frequency Modulation.* (Electrician, Vol. 131, No. 3,407, 17/9/43, p. 283.)
946	16217	Switzerland ...	*Temperature Measurements on Buried High Tension Cables.* (From Bulletin Schweis Elecktrotechn. Veroin, Vol. 34, No. 5, 10/3/43, pp. pp. 105-107.) (R. Iselin and O. Wanner, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 226-228.)
947	16237	G.B.	*Mechanical Integration in Electrical Problems (34th Kelvin Lecture).* (D. R. Hartree, Journal of the Inst. of Electrical Engineers, Vol. 90, No. 34, Pt. 1, Oct., 1943, pp. 422-435.)
			Electric Motors, Lamps, etc.
948	15092	Germany ...	*A New Conductivity Metre.* (J. Grosskopf, W. Putzer and K. Vogt, T.F.T., Vol. 31, No. 4, April, 1942, pp. 112-114.)
949	16111	G.B.	*Reversing Electrical Motors.* (Electrician, Vol. 131, No. 3,407, 17/9/43, pp. 280-282.)
950	16264	G.B.	*Temporary Sleeves to Identify Electrical Harnesses.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 86.)
951	16381	G.B.	*The Development of the Coiled-Coil Lamp.* (Engineering, Vol. 156, No. 4,060, 5/11/43, p. 368.)
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952	15126	U.S.A. ...	*Electronic Methods of Heating Metallic and Non-Metallic Materials.* (K. Henney, Scientific American, Vol. 169, No. 3, September, 1943, pp. 103-105.)
953	15824	U.S.A. ...	*Electronic Motor Control (for Direct Current Motors).* (Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 530-538.)
954	16133	U.S.A. ...	*Air Cleaner Utilises Ultra-Sonic Waves Electronically Generated.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 168.)
955	16278	U.S.A. ...	*The Electronic Tube (Review of Applications).* (E. R. Grace, Service Engineering, Vol. 1, No. 2, Spring, 1943, pp. 4-5.)
			SOUND, LIGHT AND HEAT.
			Acoustics, Resonance.
956	14933	G.B.	*A Universal Resonance Chart.* (H. G. Yates, Engineer, Vol. 176, No. 4,577, 1/10/43, pp. 268-269.)

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958	15635	Switzerland ...	*Acoustics of Radio Studios (IV).* (W. Furrer, Schweizer Archiv., Vol. 8, No. 5, May, 1942, pp. 143-152.)
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961	15231	G.B.	*Colour Microscopy in Ultra-Violet Rays.* (E. M. Bramberg, Nature, Vol. 152, No. 3,856, 25/9/43, p. 357.)
962	15411	U.S.A. ...	*Colour Television—Part II.* (P. C. Goldmark and others, Procs. of the I.R.E., Vol. 31, No. 9, September, 1943, p. 465.)
963	15626	Switzerland ...	*The Propagation of Light in Hollow Conductors.* (A. Mathieu, Schweizer Archiv., Vol. 8, No. 9, September, 1942, pp. 288-291.)
964	15991	U.S.A. ...	*Colour and Composition of Light in Relation to the Black-Out.* (J. Aviation Med., Sept., 1942, Vol. 13, No. 3, pp. 193-200.) (C. E. Ferree and G. Rand, Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 113.)
965	16180	G.B.	*Fluorescent Lighting.* (Electrician, Vol. 131, No. 3,412, 22/10/43, pp. 403-404.)
			Radiant Heating, Heat Transfer.
966	14886	G.B.	*Radiant Heating for Industrial Processes.* (L. W. Andrew and E. A. C. Chamberlain, Engineering, Vol. 156, No. 4,054, 24/9/43, pp. 245-246.)
967	14937	G.B.	*Emergency Valves for High-Pressure Heating Systems.* (Engineer, Vol. 176, No. 4,577, 1/10/43, pp. 273-274.)
968	15223	Germany ...	*Freezing of Acids in Accumulators.* (From A.T.Z., Vol. 45, No. 23, Dec., 1942, pp. 641-645.) (E. Blaich, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 200-202.)
969	15531	G.B.	*Radiant Heating for Industrial Processes.* (L. W. Andrew and E. A. C. Chamberlain, Engineering, Vol. 156, No. 4,056, 8/10/43, pp. 298-300.)
970	15532	G.B.	*The Growth of District Heating in Russia and Germany.* (A. E. Margolis, Engineering, Vol. 156, No. 4,056, 8/10/43, pp. 283-284.)
971	15830	U.S.A. ...	*Heat Transfer Through Turbulent Friction Layers.* (H. Reichardt, N.A.C.A. Tech. Memo., No. 1,047, Sept., 1943.)
972	15832	U.S.A. ...	*A Table of Thermodynamic Properties of Air.* (J. H. Keenan and J. Kaye, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A123-A130.)

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974	15187	G.B.	*Photography as an Aid to Management. The "Bacro" System.* (P. H. Billington, Mechanical World, Vol. 114, No. 2,960, 24/9/43, pp. 345-348.)
975	15700	G.B.	*Reproduction of Diagrams on Metal Surfaces by Photography.* (Engineering, Vol. 156, No. 4,057, 15/10/43, p. 310.)
976	16017	G.B.	*Microfilming Technical Literature.* (Engineer, Vol. 176, No. 4,581, 29/10/43, p. 347.)
977	16127	U.S.A. ...	*Preparation of Lantern Slides.* (F. J. Van Antroerpen, Industrial Engineering and Chemistry, Vol. 21, No. 17, 10/9/43, pp. 144-148.)
978	16253	G.B.	*Miniature Film (Mass) Radiography.* (A. J. Minns, G.E.C. Journal, Vol. 12, No. 3, Feb., 1943, pp. 146-155.)

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979	15062	G.B.	*Cloud Reading for Pilots.* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, pp. 384-385.)
980	15078	G.B.	*Guard-Wire Lightning Protection.* (Engineering, Vol. 156, No. 4,055, 1/10/43, p. 266.)
981	15621	Switzerland ...	*Stresses and Plasticity Phenomena of Ground Snow (with Special Reference to Pressure on Base).* (R. Haefili, Schweizer Archiv., Vol. 8, No. 10, October, 1942, pp. 308-315.)
982	15624	Switzerland ...	*Stresses and Plasticity Phenomena of Ground Snow (with Special Reference to Pressure on Base).* (R. Haefili, Schweizer Archiv., Vol. 8, No. 9, September, 1943, pp. 263-274.)
983	16256	G.B.	*Sunspots.* (Wireless World, Vol. 49, No. 10, Oct., 1943, p. 303.)

PHYSIOLOGY AND AVIATION MEDICINE.

984	15297	U.S.A. ...	*Prevention of Ear Disability in Industry. Report on the Use of a Plastic Mould.* (J. Amer. Med. Ass., Vol. 121, No. 17, 24/4/43, pp. 1330-1331.) (D. H. McCoy, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, pp. 54-55.)
985	15494	U.S.A. ...	*The Oximeter for Testing Oxygen Content of Blood During Altitude Chamber Investigations.* (Der Flieger, Vol. 22, No. 8, August, 1943, p. 246.)
986	15900	G.B.	*Amplifying and Recording Technique in Electro-Biology, with Special Reference to the Electrical Activity of the Human Brain (with Discussion).* (V. Parr and W. G. Walter, Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 129-144.)

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987	15904	G.B.	*Discussion on "The Electrical Amplifying Stethoscope and Phono-Electrocardioscope."* (Journal of the Inst. of Electrical Eng., Part 3, Vol. 90, No. 11, Sept., 1943, pp. 149-150.)
988	15938	G.B.	*A Simple Inexpensive Photo-Electric Hæmoglobinometer.* (G. H. Bell and E. Guthmann, Journal of Scientific Instruments, Vol. 20, No. 9, Sept., 1943, pp. 145-146.)
989	15987	G.B.	*Effects of Increased Flying Time on Aviation Instructors.* (From War Medicine, Chicago, Vol. 3, No. 3, March, 1943, pp. 297-302.) (J. E. Dougherty, Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 111.)
990	15988	Germany ...	*Possible Improvement of Human Altitude Tolerance by Therapeutic Means.* (Deut. Med. Woch., Vol. 69, No. 2, 15/1/43, pp. 25-28.) (A. Rühl, Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 112.)
991	15989	U.S.A. ..	*The Effect of Pre Oxygenation on New Born Rats Exposed to a Simulated Altitude of 35,000 Feet (Barometric Pressure of 67.8 mm. Hg.), Preliminary Report.* (J. Aviation Med., Vol. 13, No. 3, Sept., 1942, pp. 190-192.) (A. L. Barach and others, Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 112.)
992	15990	G.B.	*The Physiology of Free Fall Through the Air. Delayed Parachute Jumps.* (Quarterly Bull., North Western Univ. Med. School, No. 4, 1942, pp. 254-266.) (A. Carlson and others, Bulletin of War Medicine, Vol. 4, No. 2, Oct., 1943, p. 113.)
993	16125	U.S.A. ...	*Penicillin.* (Industrial Engineering and Chemistry, Vol. 21, No. 17, 10/9/43, pp. 1430-1434, 1468.)
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995	15346	G.B.	*Precision Hygrometry with a Wet Bulb.* (W. L. Balls, Nature, Vol. 152, No. 3,857, 2/10/43, pp. 389-390.)
996	15409	G.B.	*Matrix Algebra. Part II—Solution of Electrical Network Problems.* (J. C. Simmonds, Electronic Engineering, Vol. 16, No. 188, October, 1943, p. 314.)
997	15526	G.B.	*The Probability-Integral of the t-Function.* (U. R. Evans, Engineering, Vol. 156, No. 4,056, 8/10/43, p. 295.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
998	15777	G.B.	...	*The Electron Mass in Relation to the Energy of Formation of the Atoms: Calculation of Isotopic and Atomic Weights.* (H. D. K. Drew, Chemistry and Industry, Vol. 62, No. 42, 16/10/43, pp. 390-393.)
999	15825	U.S.A.	...	*The Extreme Properties of Matter.* (Sir Charles Darwin, Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 539-549.)
1000	15884	G.B.	...	*The Accuracy of Numerical Harmonic Analysis.* (P. G. Manley, Engineering, Vol. 156, No. 4,058, 22/10/43, p. 335.)
1001	15953	G.B.	...	*Length of Chord for Laying Out Equal Spacings Around a Circle—Four (Table).* (Machinery, Vol. 63, No. 1,616, 30/9/43, p. 380.)
1002	15966	Germany	...	*The Harmonic Analysis of Discrete Numerical Series.* (E. R. Berger, Z.A.M.M., Vol. 22, No 5, Oct., 1942, pp. 269-272.)
1003	15967	Germany	...	*The Practical Integration of Plane Vectors.* (S. Borbely, Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 273-277.)
1004	15968	Germany	...	*A Simple Series Transformation for a Very General Fourier Series.* (H. Buckholz, Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 277-286.)
1005	15969	Germany	...	*Method for Estimating Very Small Correlation Factors Between Two Stateshead Series.* (H. Gabdun, Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 286-298.)
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March, 1944

Abstracts from the Scientific and Technical Press

(No. 120. February, 1944)

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NOTE.—As far as possible, the country of origin quoted in the items refers to the original source.

The Aerodynamics of Model Aircraft in Free Flight. (F. W. Schmitz, Berlin, 1942. Publishers: Volckmann, Nachf.) (120/1 Germany.)

This most interesting book was awarded the Ludwig Prandtl Prize in 1941. It covers wind tunnel determinations of wing polars of model aircraft wings over the range of Reynolds numbers $Re = 20{,}000$ to $170{,}000$, *i.e.*, free flight conditions. The model wings were all of rectangular plan with a chord of 90 mm. and a span of 450 mm. and covered the following profiles:—

(1) Goettingen 625.
(2) N.A.C.A. N. 60,
(3) N.A.C.A. N. 60 R, } N.A.C.A. Tech. Note 388.
(4) Flat plate.
(5) Curved plate, Goettingen 417a.

The aerofoils had the following principal dimensions, the measurements being expressed as a percentage of the chord:—

Profile.	Max. Thickness.		Max. Camber.		Nose radius.
	d	at x	f	at x	r
625	20	30	6	33·3	3·4
N. 60	12.41	30	4	40	1.4
N. 60 R.	12.41	30	3	36	1.4
Flat plate	2.9	10 to 75	0	—	·5
Curved plate, 417a ...	2.9	—	5.8	40	1.45

The measurements covered the usual lift, drag and moment coefficients over the incidence range $\pm 20°$ and *Re* from 20,000 to 170,000, the results being corrected both for aspect ratio and wind tunnel interference. Great care was taken to ensure an air stream of very little initial turbulence, the critical *Re* for a sphere being 380,000 at $C_D = .3$ against 405,000 in free air.

Whilst a full scale glider (span 13 m.) will have a gliding angle of about 1 in 20, a gliding speed of about 16 m./sec. and $Re = 1.5 \times 10^6$, a good model to 1/10 scale will glide at about 6 m./sec. at an angle of 1 in 10. Although the glide is much steeper, the actual rate of vertical descent is less than that of the full scale glider and this is achieved by reducing the wing loading of the model to $\frac{1}{16}$ full scale value of 16 kg./m.^{2}. The reduction in *Re* to about 50,000 has thus profoundly affected performance. The boundary layer on the wing is now predominantly laminar and will have great difficulty in following the wing profile on the suction side without early separation. Whilst in the full scale machine flying at a small angle of incidence every effort is made to keep the boundary layer laminar and thus reduce drag, the reverse holds on the model wing operating at relatively large incidence, the benefit of an adhering turbulent layer far outweighing the extra friction drag. Profile 417a with a sharp nose and small thickness ratio thus gives the best results, the nose vortex ensuring turbulence at flight incidence. In the case of profiles 625, N. 60 and N. 60 R., on the other hand, a very small change in speed or incidence may cause a sudden change in lift of over 100 per cent., due to differences in the adherence of the boundary layer. These changes, moreover, exhibit marked hysterisis effects. It is interesting to note that such profiles can be readily stabilised to operate at the higher lift value by the simple expedient of stretching a fine thread along the wing span and slightly in front of the nose.

Considerations of boundary layer stability also affect wing tip and airscrew design for the model. Thus in order to make the effective *Re* as high as possible, a rectangular wing plan and airscrews with blade widths increasing towards the periphery should be adopted.

Apart from the wing polar diagrams already mentioned, the book also contains interesting photographs of the stages of boundary layer separation at small *Re* values. These photographs were taken using a two-dimensional water channel and show clearly how a previously separated laminar boundary layer will adhere again on becoming turbulent.

Heat Transfer and Hydraulic Flow Resistance for Streams of High Velocity. (V. L. Lelchuk, Journal of Technical Physics, U.S.S.R., Vol. 9, No. 9, 1939, pp. 808-818.) (R.T.P. Translation No. T.M. 1,054.) (120/2 U.S.S.R.)

The apparatus consisted of a piston compressor delivering air up to 6 atmospheres (absolute) into a settling tank from which it passed through a 3 in. pipe line fitted with a standard orifice meter and was subsequently heated (up to 400°C.) by an electric heater.

The measuring section consisted of a smooth copper tube, 14 mm. internal diameter and 2 mm. thick, placed centrally inside a brass tube 19.8 mm. internal diameter, the intervening space forming a water jacket (counter flow). Even distribution of the cooling water was assured by the admixture of a small percentage of compressed air before admission.

The experimental tube was 1,431 mm. long and provided with nine static pressure holes (.08 mm. diameter) distributed along its length. Thermocouples were provided for measuring both the variations in tube wall and jacket water temperatures between inlet and exit; the rate of cooling water flow being determined by weighing.

The following table gives the range of the various variables covered in the experiments :—

Air flow	40-100 gm./sec.
Water flow	30-40 ,,
Air temperature—	
Entry	230-400°C.
Exit	140-200°C.
Water temperature—	
Entry	8-10°C.
Exit	63-76°C.
Tube wall temperature—	
Entry	60-70°C.
Exit	19-23°C.
Static pressure of air—	
Entry	20-50 m. H_2O.
Exit	7-17 m. H_2O.
Nusselt number	200-500 ($\alpha D/\lambda$).
Peclet number	50,000-300,000 ($W\gamma C_p D/\lambda$).
Reynolds number	70,000-420,000 (WD/ν),

where W = stream velocity.
γ = weight of unit volume of fluid.
α = heat transfer coefficient.
λ = thermal conductivity.
ν = kinematic viscosity.

It is interesting to note that neither the flow speed W nor the flow temperature T of the air in the working section are measured directly, but are calculated as follows :—

From the conservation of energy we have

$$\frac{AW^2}{2g} + C_p T + Q = C_p T_o + \frac{AW_o^2}{2g} \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where A = mechanical equivalent of heat.
Q = heat loss up to section considered.

If the R.H.S. of the above applies to the wide tube prior to entry into the cooler, $W_o \to 0$ and T_o can be measured directly with a thermometer.

Defining the stagnation temperature at any point as

$$T_m = \frac{AW^2}{2gC_p} + T$$

we thus have for any particular section of the cooled tube

$$T_m = T_o - \frac{Q}{C_p} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

where Q can be determined from the mass flow of water and the gradient of the water temperature.

Substituting (2) in (1) gives

$$W = \sqrt{\frac{2gC_p}{A}(T_m - T)}$$

also

$$W = \frac{GV}{F} = \frac{GRT}{pF}$$

where G = mass rate of flow of air.
F = cross section of tube.
R = gas constant.

Knowing therefore T_m, T can be calculated.

The Bernoulli equation for compressible flow with friction is given by

$$\frac{WdW}{g} = -Vdp - \xi \frac{W^2}{2g} \times \frac{1}{D} dL$$

when ξ = friction coefficient. Hence

$$\xi = \frac{-2D}{\rho W^2} \frac{d(p+\rho W^2)}{dL}$$

where $\rho = 1/Vg$ = density.

The friction coefficient at any section thus depends on the slope of $(p+\rho W^2)$ at that section. Calculating ρ at the stagnation temperature of the section, the results obtained fit the Nikuradse equation :—

$$\xi = .0032 + \frac{.221}{Re\ .237} \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

originally obtained for flow without heat transfer. Defining the heat transfer coefficient α in terms of the stagnation temperature, we similarly have :—

$$dQ = \alpha (T_m - T_w) \pi D \, . \, dL,$$

where T_w = tube wall temperature.

Since dQ is known from the water temperature distribution, α as well as the corresponding Nusselt number $\alpha D/\lambda$ can be calculated.

According to the momentum theory of heat transfer, a simple relationship exists between the resistance coefficient ξ and α, provided the thermal resistance of the laminar boundary layer at the wall can be neglected.

This relationship is of the form

$$\xi\, 8 = Nu\ /\ Pe \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

where Pe = Peclet number $= \dfrac{W\gamma C_p D}{\lambda}$

γ = weight of unit volume of the fluid.

The experimental results show that this relationship holds, provided the stagnation temperature T_m is used throughout for calculating the material constants. It should be especially noted that this result is independent of Mach number.

Heat Transfer to a Plate in Flow at High Speed. (E. Eckert and O. Drewitz, Forchung, Vol. 11, No. 3, June, 1940, pp. 116-124.) (R.T.P. Translation No. T.M. 1,045.) (120/3 Germany.)

The equation of the laminar boundary layer of a semi-infinite flat plate in a two-dimensional longitudinal flow exhibiting a temperature gradient are given by

$$\frac{\partial(\rho u)}{\partial x} + \frac{\partial(\rho v)}{\partial y} = 0 \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

$$\rho\left(u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial y}\right) = \frac{\partial}{\partial y}\left(\eta\frac{\partial u}{\partial y}\right) \quad . \quad . \quad . \quad . \quad (2)$$

$$\frac{\partial}{\partial y}\lambda\left(\frac{\partial T}{\partial y}\right) + \eta\left(\frac{\partial u}{\partial y}\right)^2 = gC_p\rho\left(u\frac{\partial T}{\partial x} + v\frac{\partial T}{\partial y}\right) \quad . \quad . \quad . \quad (3)$$

where u = velocity component in x direction (along plate).
v = velocity component in y direction (perp. to plate).
T = temperature.
ρ = density.
η = viscosity.
λ = thermal conductivity.
c_p = specific heat at constant pressure.
g = gravitational constant.

Since the pressure is assumed to be constant in the boundary layer, the material constants in the above equations depend on T only. The maximum temperature rise in the boundary layer due to internal friction of air (Prandtl number < 1) is of the order of the adiabatic temperature rise and in case of sonic speeds amounts to about 60°C. The corresponding changes in density, viscosity and thermal conductivity are therefore relatively small.

Neglecting these changes for the present equation (1) is fulfilled by the stream function ψ whilst (2) has been solved by Blasius.

With the help of the Blasius substitution, (3) reduces to the Pohlhausen form

$$\frac{d^2\theta}{d\xi^2} + Pr\,\zeta\,\frac{d\theta}{d\xi} = f(\xi) \quad . \quad . \quad . \quad . \quad . \quad (4)$$

where $\xi = \frac{1}{2}y\sqrt{\frac{u_o}{\nu x}}$

$$\zeta = \frac{\psi}{\sqrt{\nu u_o x}}$$

Pr = Prandtl number $= \dfrac{\eta c_p}{\lambda}$ $\quad u_o$ = velocity of undisturbed stream.

θ = temperature rise above undisturbed stream.

(*A*) If we neglect the heat generated in the boundary layer itself, *i.e.*, u_o is sufficiently small so that the disturbance function on the R.H.I. of (4) $\rightarrow$ 0 we obtain the ordinary Pohlhausen solution, *i.e.*,

$$\frac{\theta_1(\xi)}{T_w - T_o} = 1 - a\int_0^{\xi} e^{-Pr\int_0^{\xi} d\xi}\, d\xi \quad . \quad . \quad . \quad . \quad (5)$$

where T_w = plate temperature.
T_o = undisturbed flow temperature.
$a = f(Pr)$.

Graphical solutions $\theta_1/(T_w - T_o)$ with Pr as parameter are given. It is interesting to note that the Blasius velocity profile and the temperature profile are of identical shape if $Pr = 1$. As Pr increases, the thickness of the temperature profile shows a relative decrease and at $Pr = 1{,}000$ (oil), the laminar boundary layer is ten times as thick as the corresponding temperature profile.

Putting $\alpha(T_w - T_o)$ = heat transfer per unit time and unit area at a distance x from the leading edge, the transfer coefficient α is given very approximately by

$$\frac{x\alpha}{\lambda} = .332\sqrt{Re}\sqrt[3]{Pr}$$

(*B*) If now we introduce heat generated by internal friction in the boundary layer (u_o large) the R.H.S. of equation (4) is no longer zero and the general solution of (4) becomes more complicated.

A considerable simplification, however, results if the gas temperature T_o in the undisturbed flow is replaced by the so-called " natural " temperature T_e defined as the temperature assumed by an unheated plate exposed to the stream.

In this case $(d\theta/d\xi)_{\xi=0}$ is zero and equation (5) simplifies to

$$\theta_e \Big/ \frac{u_0^2}{2gc_p} = f(Pr)$$

where θ_e = temperature rise of unheated wall above T_0.

Knowing θ_e, the natural temperature of the unheated wall becomes $T_e = T_0 + \theta_e$.

Values of $\theta_e/(u_0^2/2gc_p)$ as a function of Pr and $u_0/2gc_p$ as a function of u_0 are given by the author in graphical form. The former ranges from 1 to 15 over the range Pr 1 to 1,000. For the Pr range .5 to 2 involved for gases $\theta_e/(u_0^2/2gc_p)$ is almost directly proportional to $\sqrt{Pr}$. The temperature field θ_2/θ_e for the unheated plate is also given. For the same Pr, the non-dimensional thickness of the temperature field θ_2 is greater than that of the low speed field θ_1.

Since $u_0^2/2gc_p = 1$ at about 45 m./sec., θ_e is about 20°C. and 100°C. for air speeds of the order of 200 and 450 m./sec. respectively ($Pr = 1$). (In the case of oil ($Pr = 1{,}000$) the temperature rise of the unheated plate would be 15 times as great.)

Thus at 200 m./sec. or 450 m.p.h. the laminar friction causes a rise in the "natural" air temperature of 20°C., *i.e.*, the effective temperature difference for heat transfer in a radiator with a measured surface temperature of 65°C. above the atmosphere (see level flight) is only 45°C. whilst at 380 m./sec. it would become zero, and the radiator would cease functioning.

Similar considerations apply to the thermally insulated pressure cabin, which will have to be artificially cooled under high speed low level flight conditions.

(*C*) As is evident from the linear form of (4), the final solution can be obtained by the superposition of two temperature fields. By introducing T_e instead of T_0 into the equation, the fields are sorted out so that one (θ_1) refers to the plate kept at a temperature T_w, whilst the other (θ_2) represents the friction flow only.

The resultant field θ is shown for $Pr = .7$, θ/θ_e being plotted against the non-dimensional thickness ξ. The heat removed from the plate by the air per second is given by

$$q = \alpha [(T_w - T_0) - \theta_e] = \alpha [T_w - T_e]$$

where α = heat transfer coefficient and is therefore = 0 if $\theta_e = T_w - T_0$.

If $T_w = T_0$, heat is flowing into the plate and calculation shows that the whole of the friction heat is absorbed if $T_w - T_e = -.4\,\theta_e$.

It is interesting to note that with the above definition for the heat transfer coefficient, the expression for the Nusselt number is the same as that already obtained for low air speeds neglecting heat generated by friction in the boundary layer.

In all the above, it has been definitely assumed that the material constant of the medium (ρ, η, etc.) remain invariant.

A detailed examination of this assumption has been carried out for the special case of $Pr = 1$ from which it is concluded that the velocity profile is not appreciably affected up to $M = 2$ and that the heat transfer factor estimated on a T_e basis remains within 3 per cent. of its low speed values provided the material values for T_e are used in the equations.

The effect of turbulence on the heat transfer in the boundary layer has so far been neglected. Although an exact theoretical treatment of such flows is not possible, it appears highly probable that the superposition of frictionless and friction temperature fields will still hold provided the material values remain constant. This latter assumption seems justified in view of the small effect of such variations in the case of the laminar field.

Under these conditions, the characteristic expressions for the Nusselt number $\alpha x/\lambda$ obtained for the low speed laminar flow will still hold provided α is defined by

$$q = \alpha (T_w - T_e)$$

where T_e = temperature of the unheated plate with turbulent boundary layer.

At the moment T_e will have to be determined experimentally.

Theoretical investigations, as far as they go, indicate that the effect of turbulence is to raise T_e by about 5 per cent. at 200 m./sec.

Experimental Investigation in Aircraft Dynamics. (W. B. Berger, J. Aeron. Sc., Vol. 10, No. 8, Oct., 1943, pp. 233-249.) (12c/4 U.S.A.)

In the early days of flying, problems of stability, power plant and primary strength were of such importance that vibration was accepted as a necessary evil. To be sure, failures were common, but it was not till the other phases of design were well under control that vibration problems began to be perceived in their true perspective. These problems have now become urgent and must be solved if the present rate of development is to be maintained.

Aircraft vibration can be classified under three main headings:—

1. Those originating in the power plant.
2. Those due to dynamic loads applied to the elastic aircraft structure during landing and take-off or flight manœuvres.
3. Those due to aerodynamic excitation, such as wing flutter, aileron reversal, etc.

1. *Power plant vibration problems* are amenable to mathematical analysis and the frequencies and magnitudes of the excitation forces are thus already known in the design stage. Complete elimination of such forces over the whole speed range is impossible in a piston mechanism and the problem thus generally reduces itself to preventing the forcing impulses from inducing dangerous vibrations in those portions of the aircraft structure to which they may be transmitted, *i.e.*, the natural frequency of such parts must be either above or below the excitation frequency. In coupled systems, the transmissibility of the excitation, *i.e.*, the ratio of transmitted force to excitation force is least for large values of the ratio forcing frequency/natural frequency, and whenever possible, the natural frequency of parts subjected to induced vibration should be less than 60 per cent. of the forcing frequency. If for reasons of rigidity such low frequencies are not possible, the natural frequency must be made at least twice the forcing frequency. Thus instrument panels and delicate accessories should have natural frequencies below 700 cycles per min. Throttle control tubes, on the other hand, generally require a natural frequency of at least 4,000, whilst for accessories directly attached to the engine a lower limit of 10,000 cycles per min. is often found necessary.

The introduction of friction or viscous damping is only recommended as a last resort. Dynamic dampers, however, have given good results.

2. With increasing size of aircraft, the structure necessarily becomes more flexible and under certain landing conditions the fuselage may tend to vibrate transversely at one or more of its natural frequencies, and these vibrations may build up so that the static design stresses are exceeded by considerable amounts. The empirical rules associated with the design of small aircraft are thus no longer applicable and an extensive research was undertaken to determine the load factors under these new conditions with a view to rationalising the design of large aircraft structures. The experiments were carried out mainly on three large flying boats ranging from 50,000 to 140,000 lb. gross, representative smooth water landings being carried out over a range of loads and landing techniques. Rough water tests are in progress. The tests show that whilst the accelerations ($\sim 2g$) encountered at the C.G. of the aircraft were well within the design limita-

tions ($\sim 0g$), the acceleration at the tail may amount to as much as $9g$ and exceed the design acceleration. Even higher accelerations have been noted at the stabiliser tip. In addition to these vertical accelerations the aircraft was also subject to a considerable angular acceleration about the C.G. when landing. Such accelerations are very important in twin-tail aircraft where the heavy fin and rudder masses can build up large inertia forces. It thus may prove necessary to proportion the hull load factor in accordance with a parabolic acceleration distribution from the rear step to the tail.

3. Unlike power plant vibrations, aerodynamic excitation (flutter), except in the simplified two-dimensional case, is not amenable to theoretical treatment without experimental data covering at least some of the factors entering into the problem.

Much progress has been made of late in the design of suitable recording instruments. Acceleration pick-ups are now available which weigh less than $\frac{1}{2}$ oz. each and give a practically linear response over the range $\pm 20g$ at frequencies up to 5,000 cycles/minute. The pick-ups are of the induction type and are compensated for changes in the ambient air temperatures, and the measuring current, after amplification, is recorded on a special oscillograph which can handle 12 stations simultaneously. Including power supply, the whole equipment weighs 100 lb. The usual procedure in flight tests is to subject the structural part under investigation to forced mechanical vibration by attaching a rotating out of balance mass. The response of the member is then studied at a series of constant flying speeds for various constant forced frequencies. The approach of flutter is indicated by increasing amplitude and decreasing damping of the vibration, the power input to the oscillator showing a corresponding decrease. From experience gained so far it appears that at least for 2-degree coupling involving a control surface, the increase in amplitude with speed is sufficiently gradual to give advance warning. In the case of flexure-torsion coupling, however, critical conditions may be reached more suddenly and this is being investigated at present.

Quite apart from proving the safety of any particular type of aircraft, flutter research is of importance in providing fundamental data for design investigation. In this connection wind tunnel tests are naturally attractive. If the requirements of complete dynamic and geometrical similarity can be met, the flutter speed of the model will be exactly the same as that of the full-scale structure. Since this is generally too high for wind tunnel work, a material of lower modulus/density ratio is chosen for the model than is employed for the full-scale structure. Details are given of such a flying boat model built to geometric scale 1 : 7.87, utilising a cellulose nitrate plastic. The wing flutter speed ratio for this model was calculated to be 1 : 4.3 of full scale, whilst the theoretical natural frequency ratio to full scale for various types of vibration was 1 : .545. The latter factor was found to be in excellent agreement with flight tests and since the model showed no dangerous vibration till wind speeds of the order of 96 m.p.h. were reached, it was concluded that the prototype should be safe for diving speeds up to 400 m.p.h., which are clearly outside the range of the design speed of this type.

A balsa wood model for tail flutter investigation was also made. It consisted of a fuselage section fitted with conventional stabilizer fin and control surfaces, the major flutter parameters being adjustable over wide limits. In order to obtain the pertinent dynamic data (frequency, phase angle, damping), induction type accelerometers weighing less than $\frac{1}{2}$ oz. were mounted in different parts of the structure. The results were plotted in terms of non-dimensional flutter speed against control surface/fuselage natural frequency ratio α. They are generally in good agreement with Theodorsen's theoretical conclusions, taking account of friction at the hinge (without friction, the non-dimensional flutter speed becomes zero at a critical value of α generally less than 1).

If the frequency ratio exceeds a certain limit (usually of the order of 2), the control surface has a very high flutter speed and mass balance is of secondary

importance. Aerodynamic balance of the control surface seems to be most effective at small values of the frequency ratio α.

The effect of control tabs on tail flutter is most marked. Such tabs are usually constrained to move about their hinges by an amount proportional to the control surface deflection. A leading tab is one in which the tab motion is in the same direction as that of the surface. Such a tab raises the flutter speed markedly in the case of large mass unbalance and a frequency ratio α near unity. This suggests designing the control surface with considerable aerodynamic balance (thus necessitating the addition of only a relatively small mass to obtain the necessary forward position of the C.G.) and increasing the hinge moment so as to satisfy stability requirements by fitting a leading tab.

Fault Detector for Hydraulic Systems. (Flugsport, Vol. 30, No. 1, 19/1/44, pp. 5-6.) (120/5 Germany.)

Fault detection in hydraulic systems usually necessitates disconnecting sections of the pipe line in turn and measuring the pressure by means of a manometer. This process takes time and may lead to a loss of oil. The Junkers firm have now developed a very sensitive optical gauge, by means of which the pressure in any part of the pipe line can be accurately determined by measuring the corresponding deformation of the pipe wall under load. Disconnecting the circuit is therefore no longer necessary. The instrument consists essentially of a plunger, the lower end of which contacts the tube wall whilst the upper end carries a flat plate of glass above which is placed a plano-convex lens. Plunger and glasses are carried in a casing which screws into a clamp surrounding the tube under examination.

With no load in the pipe, the casing is screwed home till the contact pressure on the plunger is such that the Newton interference fringes formed between the plate and lens (viewed by reflected light) occupy a definite position on circular reference marks provided on the glass.

Any displacement of the tube wall due to internal hydraulic pressure is accompanied by a corresponding shift in ring diameter, which can be read off directly on the reference mark and converted into hydraulic pressure by means of a previous calibration of the instrument.

The Amplidyne. (F. Felix, J. Am. Soc. of Naval Engineers, Vol. 55, No. 4, Nov., 1943, pp. 778-781.) (120/6 U.S.A.)

The article describes in simple language the new motor generator designed by the G.E.C. and which represents one of the most important electrical developments of recent years. By the ingenious use of short circuit and compensating field windings, the generator will respond to changes in the field input as small as $\frac{1}{2}$ watt to produce change in output of several kilowatt. The machine thus lends itself admirably to many distant control operations, being robust and simple and not requiring any electronic devices. In a normal generator, with separately excited field, reducing the field flux or excitation power to a value of a few watts so that it can be handled by control devices, reduces the output to negligible amounts. If now the external load is disconnected and the brushes shorted, the armature current and flux can resume their original value. This armature flux is utilised by fitting two new brushes, one in the centre of each armature flux loop, just as conventional brushes are fitted in the centre of the excitation flux. One of these new brushes is connected directly to the load whilst the other brush passes first through a compensating field, which ensures that the load current passing through the armature is incapable of setting up an armature flux. It is then possible to re-establish the original output at a very small field excitation. Moreover, increasing this separate field excitation from say 1 to 4 watts, will cause a fourfold change in output (10 to 40 kilowatts).

If several control fields, independently excited from signal devices are placed on the same pole structure, the Amplidyne will respond to their resultant action and amplify as for a single field.

The small space required by the individual coils makes it possible to have a normal complement of four fields, permitting many independent functions to control the Amplidyne output.

Each of these fields is easily adjusted by a small resistor or other means, and since their current requirements are so small, their action may be automatically blocked by small rectifiers as long as certain operating conditions or limits are not reached.

"Direpeller" Method of Jet Propulsion. (E. Lagelbauer, Mechanical Engineering, Vol. 66, No. 1, Jan., 1944, pp. 66-67.) (120/7 U.S.A.)

The reaction of an air jet depends on the momentum per second which is imparted to the air and the same thrust can therefore be produced either by having a high mass flow rate and a low increment of speed or vice-versa. From the point of view of compactness and thermal efficiency of installation the high speed jet presents important advantages. From the point of view of propulsion efficiency, however, it pays to handle the largest possible flow rate and impart only a moderate increment of velocity to the jet. One way of overcoming this difficulty would be to utilise the jet to draw in extra air from the outside and thus accelerate a larger mass which would issue at a correspondingly lower speed. Experiments with such so-called " thrust augmenters " have shown, however, that this mixing is always accompanied by considerable losses unless the mixing device assumes prohibitive dimensions.

The author suggests the following method for overcoming this difficulty:—

Consider an open cylinder pointing in the direction of flight and provided with guide vanes at entry giving a spin to the air. The reaction jets are placed tangentially near the inner surface of the cylinder so as to increase the spin. The rotary momentum thus generated is extracted in a second guide vane ring placed at the exit of the cylinder, the issuing gas thus producing a purely axial reaction. The tangential reaction produced on the casing can be balanced by employing two units with opposite gas rotation. As from the appended sketch the tubes envisaged appear to be about 6 foot internal diameter, the quantity of induced air should be considerable.

No test data are as yet available.

The Energy Transformation in the Gas and Oil Turbine. (W. Nusselt, Die Warme, Vol. 66, No. 15, June, 1943, pp. 139-143.) (120/8 Germany.)

The main difficulty in designing an efficient gas turbine is the fact that the blade temperatures with existing materials must not exceed about 600°C. On the other hand, a reasonable thermal efficiency requires considerable precompression of the charge, and since this has to be carried out adiabetically for reasons of space, the temperature of the gas entering the combustion space is already relatively high. As a result, the amount of heat that can be added without exceeding critical exhaust temperatures is restricted. The positive-negative work ratio of the cycle is thus relatively low which necessitates that the compressor and turbine efficiencies must both be high if any useful work is to be produced.

Theoretically, lowest exhaust temperatures are reached if the combustion gases are expanded to atmospheric pressure and the resultant kinetic energy abstracted in single velocity stage turbine. The resultant gas speeds are, however, very high and the heat generated by friction in the boundary layer of the turbine blades causes the latter to exceed the gas temperature by appreciable amounts. According to the author, this temperature difference amounts to already 27°C.

at a gas speed of 250 m./sec. and rises to 240°C. at 500 m./sec. for a thermally insulated (uncooled) blade.

Since normally, the blades are only imperfectly cooled by conduction through the blade foot, it is clear that a considerable portion of the temperatures drop due to expansion will be regenerated by friction on the blade and the single stage impulse turbine thus does not present such an attractive solution as might appear at first sight (quite apart from troubles due to the high speed of operation inherent in the design).

With a fixed combustion temperature, the overall thermal efficiency can be improved if the exhaust heat leaving the turbine could be utilised in the combustion chamber. This is, however, only possible if the exhaust temperature is above the compression temperature. Moreover, this temperature difference must be of the order of at least 50°C. if the regenerator is to be of reasonable dimensions. These temperature restrictions automatically limit the compression ratio which can be adopted. According to the author, the best compromise is obtained at quite a low compression ratio of the order of 2 (pressure scale), when an overall thermal efficiency of the order of 25 per cent. should be possible, on the assumption that both turbine and compressor have indicated efficiencies of 85 per cent. and that the maximum combustion temperature is 500°C.

As is well known, heat exchanges become more efficient, if both the hot and cool gases can be kept under pressure. For this reason, the firm of Escher Wyss have lately introduced a closed circuit hot air turbine in which the same air is continually circulated by a compressor, heat being added externally by means of an oil burner. By making the original pressure in the circuit sufficiently high, the dimensions of the heat exchanger, as well as that of the turbine and compressor can be considerably reduced for a given output, in spite of the relatively low effective compression ratio and maximum temperature. An overall efficiency of the order of 20 per cent. has already been obtained and plants of this type have been successfully employed as emergency sets for electric generating stations.

The author is of the opinion that the gas turbine will have an important field of application in civil aircraft of the future when power units of the order of 10,000 h.p. will be required. It is not thought that present overall thermal efficiencies of the order of 20-25 per cent. can be exceeded till improved blading materials allowing higher working temperatures becomes available.

As an interim solution, the author refers to a proposal of Mangold of subdividing the heat addition by providing a series of combustion chambers, each feeding its own turbine wheel, all the wheels being on a common axis. In this manner a series of pressure stages are formed, the exhaust from each turbine entering the combustion chamber of the succeeding wheel. If the difficulty of exhaust gas dilution on successive combustions can be overcome, this method presents interesting possibilities.

The Technique of Lining Tanks Made of Wood, Metal, or Concrete with Vinidur Plastic. (A. Sirot, Kunststoffe, Vol. 33, No. 2, Feb., 1943, pp. 33-39.) (120/9 Germany.)

Vinidur foils made of Igelit P.C.U. are available in strips 70 cm. wide and up to 20 m. long. For anti-corrosion lining of tanks a film thickness between .7 and 1 mm. is recommended, since it is difficult to manufacture thicker films free from wrinkles, whilst if the thickness is reduced below about $\frac{1}{2}$ mm., the mechanical strength of the film is insufficient to ensure safe handling. The major part of the article deals with the lining of metal containers. For best results, such tanks should be of welded construction and 4-8 mm. thick, and the foundations must be such that the tank cannot distort appreciably when in use.

The internal surface must first be thoroughly cleaned and then artificially roughened by sand blasting or in the case of light alloys, a chemical treatment can be adopted for this purpose (ZnO and NaOH). The surface is then covered with three layers of P.C. 10 solution (total consumption about 1.5 kg./m.²) with drying periods of 1-2 hours before the second and third coat is applied. The last coating has to stand about 15 hours before being subjected to a temperature of 130°-140°C. This causes the solvent (methyl chloride?) to evaporate and plasticises the synthetic resins contained in the solution. The heat is supplied from the outside of the tank by means of a torch. The foil, which has been previously covered with one layer of P.C.A. 20 solution and dried for 15 hours, is then applied in sections of .5 to 1 m.², depending on the amount of surface of the tank which can be kept at the requisite temperature. The foil is pressed on evenly by hand. The joints between the strips can either overlap (in which case a cover strip is cemented on subsequently) or are butt-welded in place. The process can also be applied to steel tubes by inserting a tubular liner made of the film and applying internal air pressure (about .3 atmosphere). In the case of wood or concrete tanks, heat cannot be utilised to plasticise the cement and a special compound P.C. 13 A.M. which acts at room temperature is used. Three layers of this compound are brushed on the internal surface as before, but in this case the foil previously treated with P.C.A. 20 has to be applied soon after the third coating of the cement. Overlap joints of the foil are preferable in this case. Linings of this type have proved perfectly satisfactory against the most intense corrosive chemicals over the temperature range $-10°C.$ to $+50°C.$

Mechanical cleaning is simple. The coating will stand walking on which is important when inspecting large containers. Storage tanks, water cleaning and chemical reaction vessels have been successfully provided with liners of this type. Other fields of application are in the tanning, brewing and milk industries. The lining has also proved very satisfactory for electrolytic baths. As an alternative to the thin films, the lining can also be built up of Vinidur plates, 3-5 mm. thick which are welded at the edges and supported inside the tank proper. Such lining will withstand corrosive fluids at temperature up to 100°C.

Substitution of Phosphoric and Chromic Acid for Hydrofluoric Acid for Cleaning Sheet Metal to be Spot Welded. (Flying and Industrial Aviation, Vol. 32, No. 1, January, 1943, p. 90.) (120/10 U.S.A.)

The highly scientific mind of the chemist is augmenting the inventive genius of the tool equipment designer in speeding the production of warplanes.

An example is given in the announcement by the Vega Aircraft Corporation that the simple but ingenious substitution of phosphoric and chromic acid for the commonly used hydrofluoric acid in the cleaning of sheet metal to be spot welded has not only resulted in a cleaner, brighter surface, but has also helped step up production of B-17F Flying Fortresses and Vega Ventura bombers.

Under the system previously used, the tendency of the aluminium sheet to alloy with the copper tip of the spot welder necessitated the cleaning of the tip after every 10 or 15 spots. When using a combination of phosphoric and chromic acids the tips do not have to be cleaned oftener than every 500 to 800 spots and as much as 3,300 spots have been made, without cleaning the tips.

A further advantage of the new solution is that the sheet metal may be left in the tank from an average of three to five minutes up to half an hour without injuring the metal. Under the old method, immersion in the acid had to be timed almost to the second.

The same soap tank and hot rinse is used in connection with the new solution as was employed before.

Rapid Determination of the Magnesium Content of Al./Mg. Alloys. (Z.V.D.I. Vol. 86, No. 35-36, 5/9/42, p. 558.) (Translation of original Digest (120/11 Germany.)

The magnesium content of Al./Mg. alloys can be determined by X-ray diffraction, since the lattice constant of the α mixed crystal increases with increasing Mg content. For a successful determination the following conditions must be fulfilled:—

(1) Complete solution of the Mg. in the α mixed crystal.
(2) Uniform distribution of the Mg.
(3) Fine grain structure of the sample.

The simplest method for achieving this is to take a small sample of the liquid melt in an iron spoon (previously heated to the temperature of the molten alloy) and scatter it on a well conducting metal plate. The resulting discs of metal of about .1 to .2 mm. thick are annealed in a salt bath for 5 minutes (the temperature of the bath being just under its melting point) and then quenched in water. The lattice constant is best determined by means of an electronic (Geiger) counter and the corresponding Mg. content follows from calibration curves.

The analysis takes about 20 minutes and is accurate to a small multiple of .01 per cent.

(Original article in Z. Metallkunde, Vol. 34, No. 5, 1942, pp. 114-116.)

LIST OF SELECTED TRANSLATIONS.

No. 66.

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AERO AND HYDRODYNAMICS.

TRANSLATION NUMBER AND AUTHOR.	TITLE AND REFERENCE.
2035 Kehl, A.	*Investigations on Convergent and Divergent Turbulent Boundary Layers.* (Ing. Archiv., Vol. 8, No. 5, 1943, pp. 293-329.)
2037 Kevne, F.	*Contributions to the Profile Theory (Part II).* (L.F.F., Vol. 20, No. 3, 16/4/43, pp. 81-96.)
2056 Eser, E.	*On the Flow of Compressible Fluids Past Solid Bodies at Subsonic Velocity.* (L.F.F., Vol. 20, No. 7, 20/7/43, pp. 220-230.)
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2041 Straunaris, M. ...	*Theory of Metal Solution.* (Z. f. Phys. Chem., Vol. 156, No. 2, Sept., 1931, pp. 150-158.)
2047 Hempel, M.... Krug, H. ...	*Fatigue Strength and Elongation of Steels at High Temperatures.* (Z.V.D.I., Vol. 86, No. 39-40, 3/10/42, pp. 599-605.)
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2038	Trutnovsky, K.	... *Construction and Operation of Packing Glands.* (Z.V.D.I., Vol. 85, No. 16, 19/4/41, pp. 383-387.)
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2050	Heidebroek	... *Systematic Tests on the Suitability of Bearing Materials.* (A.T.Z., Vol. 45, No. 24, 25/12/42, pp. 652-656.)
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2052	Penther, H. ...	... *Photographic Reproduction and Storing of Engineering Drawings.* (Z.V.D.I., Vol. 86, No. 43-44, Oct., 1942, p. 661.)
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2040	Straubel, R.	... *Indefinite Integrals Containing Products of Cylindrical Functions.* (Ing. Archiv., Vol. 13, No. 1, Feb., 1942, pp. 14-20.)
2043	Collatz, L. ... Zermuhl, R.	... *The Accuracy of Various Methods of Integration of Ordinary Differential Equations of the First and Second Orders.* (Ing. Archiv., Vol. 13, No. 1, Feb., 1942, pp. 34-36.)
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2046	Grosskopf, J.	... *A Recording Phase Meter for Reception Observations in the Short, Medium and Long Wave Ranges.* (T.F.T., Vol. 29, No. 11, 1940, pp. 334-339.)

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1	16638	Germany ...	*Secrecy of Free Exchange of Experience. The Importance of Technical Publications.* (Heinkel and Messerschmitt, Luftwissen, Vol. 10, No. 7, July, 1943, p. 207.)
2	16942	Germany ...	*Captured Flying Fortresses Flown by German Crews.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 610.)
3	16943	U.S.A. ...	*Skip Bombing.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 612.)
4	16995	U.S.A. ...	*Air Strategy for Victory.* (General Henry H. Arnold, Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 50, 352-353.)
5	16996	U.S.A. ...	*War in the Air (Strategy, Map of Air Routes of the World, etc.).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 71-75.)

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6	17000	U.S.A. ...	*Strategic Bombing.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 83-86, 344-345.)
7	17005	U.S.A. ...	*Air Support (Function and Purpose).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 116-118.)
8	17012	U.S.A. ...	*The Rôle of the Fighter.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 134, 233.)
9	17014	U.S.A. ...	*Saving Air Crews.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 158-159, 336-338.)
			Training and Organisation.
10	16859	G.B.	*Two Uses of Air Power: Independent Action and Combined Operations.* (F. H. de V. Robertson, Flight, Vol. 44, No. 1,821, 18/11/43, p. 566.)
11	16997	U.S.A. ...	*Task Force Command Organisation (Chart).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, p. 74.)
12	16998	U.S.A. ...	*Lessons from Combat.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 76-77, 354-356.)
13	16999	U.S.A. ...	*Army Air Forces School of Applied Tactics ("A.A.F.S.A.T.").* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 80-82, 256-268.)
14	17004	U.S.A. ...	*The Personnel of the A.A.F.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 114-115, 236.)
15	17009	U.S.A. ...	*A.A.F. Material Command (Chart).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, p. 128.)
16	17010	U.S.A. ...	*Air Forces Proving Ground (Eglin Field).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 130-131, 322-323.)
17	17013	U.S.A. ...	*The Training Command of the A.A.F.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 152-157, 244-248.)
18	17016	U.S.A. ...	*Air Intelligence.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 162-165.)
19	17017	U.S.A. ...	*Aerial Gunnery.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 166, 316.)
20	17018	U.S.A. ...	*Air Transport Command.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 183-185, 334-336.)
21	17022	U.S.A. ...	*Weather Wing of Flight Control Command.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 192, 272-284.)
22	17024	U.S.A. ...	*Communications Wing of the A.A.F.'s Flight Control Command (Rôle of Radio).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 194-195, 300-304.)

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23	17025	U.S.A. ...	*Foreign Trainees in the A.A.F.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 196-197, 338-340.)
24	17082	Germany ...	*Hitler Youth Flight Section—Competition at Quedlinburg (Sport, Models, Gliding, Craftmanship, Aircraft Recognition).* (A. Juhre, Der Deutsche Sportflieger, Vol. 10, No. 10, October, 1943, pp. 159-161.)

Design and Equipment of Military Aircraft.

25	16600	U.S.A. ...	*Panel Instruments with Internal Pivots.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 40-41.)
26	16611	G.B.	*Aircraft Plastics. Part III (Plastics Seat for Fighter Aircraft, Moulding of Perspex, etc.).* (W. Nichols, British Plastics, Vol. 15, No. 174, November, 1943, pp. 331-338.)
27	16716	U.S.A. ...	*Foldable Housing Unit for the Armed Forces (Can be Transported by Plane).* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 222.)
28	16722	U.S.A. ...	*Tube Identification Used in Curtiss Aircraft.* (Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 226-227.)
29	16745	U.S.A. ...	*Aviation Uses of the Amplidyne (Amplidyne-Controlled Aircraft Turret Guns, etc.).* (R. A. Averitt, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 177-179, 250.)
30	16849	G.B.	*Fluid Drive—Fundamental Principles of Hydraulic Systems Explained.* (Flight, Vol. 44, No. 1,822, 25/11/43, pp. 592-594.)
31	16856	G.B.	*Aircraft Instruments. Part II—Engine and Ancillary Services.* (Flight, Vol. 44, No. 1,821, 18/11/43, pp. 559-563.)
32	16923	Switzerland ...	*Metal Foil Streamers as a Protection Against Optical and Radio Location.* (Inter. Avia., No. 882-883, 31/8/43, p. 18.)
33	16936	G.B.	*Radio Controlled Automatic Pilot.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 604.)
34	16991	G.B.	*Engine Mountings for Lancaster, Stirling and Halifax.* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 280.)
35	16994	Germany ...	*The Employment of Plastics in British and American Aircraft Construction.* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 276.)
36	17083	Germany ...	*The Messerschmitt Single Strut Landing Wheel as the Precursor of the Modern Retractable Undercarriages.* (Der Deutsche Sportflieger, Vol. 10, No. 10, October, 1943, pp. 162-163.)

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37	16929	G.B.	*Bomb Attachment on Halifax (Photo).* (Inter. Avia., No. 882-883, 31/8/43, p. 1.)

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38	16930	G.B. ...	*British H.E. Bombs (Photo).* (Inter. Avia., No. 882-883, 31/8/43, p. 1.)
39	16939	Germany	*Turret Incorporating Large Calibre Guns (Junkers Patent).* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 609.)
40	16741	U.S.A.	*The Powered Gun Turret (Including Sperry Turret with Automatic Computing Gun Sight).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 120-124.)
41	16847	G.B. ...	*Reflector Gun Sights.* (Flight, Vol. 44, No. 1,822, 25/11/43, pp. 590-591.)
42	16948	G.B. ...	*Underground Storage of Shells, etc.* (Engineer, Vol. 176, No. 4,585, 26/11/43, pp. 430-431.)
43	16956	Germany	*Focke-Wulf F.W. 190 Armed with Rocket Shells (Photo).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 578.)
44	16992	Germany	*Armament of British Aircraft.* (Der Flieger, Vol. 22, No. 9, Sept., 1943, pp. 262-267.)
45	17001	U.S.A.	*The U.S. Bombsight.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 103-107, 342-344.)
46	17003	U.S.A.	*U.S. Bombs—Design and Manufacture.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 111-113, 268.)

Military Types of Aircraft (G.B.).

47	16842	G.B. ...	*De Havilland 86B (Recognition Details).* (Flight Vol. 44, No. 1,822, 25/11/43, p. 586.)
48	16843	G.B. ...	*De Havilland 89A and 89B (Dominie) (Recognition Details).* (Flight, Vol. 44, No. 1,822, 25/11/43, p. 587.)
49	16928	G.B. ...	*D.H. 98 Mosquito (Sectional Drawing and Photo).* (Inter. Avia., No. 882-883, 31/8/43, p. 1.)
50	16933	G.B. ...	*Handley Page Harrow and Airspeed Oxford in Use as Air Ambulance (Photos).* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, pp. 604-605.)
51	16934	G.B. ...	*Mosquito Fighter Bomber—New Version.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 604.)
52	16954	G.B. ...	*Avro Lancaster II Four-Motor Heavy Bombers (Photo).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 575.)
53	16990	G.B. ...	*De Havilland Mosquito IV (Design and Sectional Drawing).* (Der Flieger, Vol. 22, No. 9, Sept., 1943, pp. 251-259.)

Military Types of Aircraft (U.S.A.).

54	16554	U.S.A.	*Douglas S.B.D. Dauntless Dive Bomber.* (Trade Winds, Vol. 7, No. 1, August, 1943, pp. 10-11, 18.)
55	16682	U.S.A.	*New Fleet Air Arm, Types VIII. The Vought Sikorsky Corsair.* (Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 317-330.)

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56	16740	U.S.A. ...	*The Grumman Hellcat.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 119.)
57	16743	U.S.A. ...	*"Valiants"—Consolidated Vultee's Basic Trainers (Photo).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 138.)
58	16850	U.S.A. ...	*Vought Corsair—Fighter for Fleet Air Arm (Photo).* (Flight, Vol. 44, No. 1,821, 18/11/43, p. 550.)
59	16851	U.S.A. ...	*Dakota on Floats—The U.S. Army C-47 and C-53 Transport.* (H. W. Perry, Flight, Vol. 44, No. 1,821, 18/11/43, pp. 552-553.)
60	16854	U.S.A. ...	*Grumman Hellcat (Recognition Details).* (Flight, Vol. 44, No. 1,821, 18/11/43, pp. 550, 556.)
61	16855	U.S.A. ...	*Stinson Reliant (Recognition Details).* (Flight, Vol. 44, No. 1,821, 18/11/43, p. 557.)
62	16920	U.S.A. ...	*Martin B-26 Marauder (Armament).* (Inter. Avia., No. 882-883, 31/8/43, p. 14.)
63	16935	U.S.A. ...	*The Heavily Armed Boeing B-40.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 603.)
64	16959	U.S.A. ...	*The Liberator II (Design Details).* (R. F. M. Nielson, Aeroplane, Vol. 65, No. 1,695, 19/11/43, pp. 581-583.)
65	16961	U.S.A. ...	*The Grumman Hellcat I (Recognition Details).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, pp. 588-589.)
66	17002	U.S.A. ...	*The U.S. Heavy Bomber—Historic Development.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 108-110, 252.)
67	17027	U.S.A. ...	*Nomenclature of U.S. Aircraft (Code Letters).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, p. 218.)
68	17085	U.S.A. ...	*Details of the Consolidated Liberator (Photo). Republic Thunderbolt (Photo).* (Der Deutsche Sportflieger, October, 1943, Vol. 10, No. 10, pp. 165 and 166.)
			Military Types of Aircraft (U.S.S.R.).
69	16605	U.S.S.R. ...	*Russian Lagg-3 Fighter.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 30-32, 60-62.)
70	16848	U.S.S.R. ...	*Russian Dive Bomber (P.E. 2) (Photo).* (Flight, Vol. 44, No. 1,822, 25/11/43, p. 591.)
71	16938	U.S.S.R. ...	*M.B. 3F Long Range Bomber of the Red Air Force (Photo).* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 607.)
72	16958	U.S.S.R. ...	*Aeroplanes of the Red Air Force—II (Silhouettes).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 580.)
73	16989	U.S.S.R. ...	*Russian Military Types (Photographs) (Yak 1, Mig 3, Lagg-3, Su-2).* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 255.)
			Military Types of Aircraft (Germany).
74	16844	Germany ...	*New Ju. 188.* (Flight, Vol. 44, No. 1,822, 25/11/43, p. 588.)
75	16941	Germany ...	*Fieseler Fi. 156 Storch and Junkers Ju. 52/53 M as Air Ambulances (Photos).* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 610.)

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76	16952	Germany ...	*Ju. 188 and Messerschmitt 410 (New Details).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 573.)
77	16964	Germany ...	*Me. 109 G. 4 Single Seat Fighter (Photo).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 573.)
78	17063	Germany ...	*Catapult Start for Re. 2,000 Fighter (Photo).* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 278.)
			Military Types of Aircraft (Italy).
79	16839	Italy	*Saiman 202 M (Photo).* (Flight, Vol. 44, No. 1,822, 25/11/43, p. 575.)
80	16988	Italy	*Piaggio P-108 Heavy Bomber.* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 254.)
81	17066	Italy	*Caproni C.A. 314 Medium Bomber.* (Der Flieger, Vol. 22, No. 9, Sept., 1943, p. 254.)
			Military Types of Aircraft (France).
82	17033	France ...	*Latécoère 631 Giant Flying Boat.* (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 296-297.)
			Military Types of Aircraft (Sweden).
83	16962	Sweden ...	*The Svenska J. 22 (Recognition Details).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, pp. 588-589.)
			Gliders.
84	16764	G.B.	*The Horsa Glider (Drawing).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 274-275.)
85	16945	Turkey ...	*Turkish Transport Glider (Photo).* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 619.)
86	16955	Germany ...	*Gotha Go. 244 Transport Glider (Photo).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 579.)
87	16957	Germany ...	*D.F.S. 230 Glider (Photo).* (Aeroplane, Vol. 65, No. 1,695, 19/11/43, p. 579.)
88	17033	Holland/ Croatia	*Glider Design.* (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 305-306.)
			Maintenance and Servicing.
89	16742	U.S.A. ...	*Modification Centres Fit Military Planes for Combat.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 125-128.)
90	16759	U.S.A. ...	*Service Manuals for the Army and Navy Air Forces.* (A. Lundgren, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 233-241, 277-280.)
91	16863	U.S.A. ...	*Weapon Maintenance in Battle.* (E. E. MacMorland, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 773-774, 780.)
92	17023	U.S.A. ...	*Field Maintenance.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 193, 320-325.)
93	17031	Germany ...	*Mobile Unit for Oxygen Supply (Photographs).* (Der Flieger, Vol. 22, No. 10, Oct., 1943, p. 298.)
			A.R.P., Anti-Tank Weapons, etc.
94	15408	G.B.	*A New Air Raid Warning (G.E.C. Equipment).* (Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 210-211.)

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95	15693	G.B.	*17-Pounder Anti-Tank Gun.* (Engineer, Vol. 176, No. 4,579, 15/10/43, p. 314.)
96	16718	U.S.A. ...	*Sub-Machine Gun Redesigned to Save Materials and Tooling.* (Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 222-223.)
97	16878	U.S.A. ...	*Sub-Machine Gun M. 3.* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, p. 819.)
98	16917	Switzerland ...	*Germany Under the Fire of Total Air War (Phosphorus Bombs, Shelters, Relief Measures, etc.).* (Inter. Avia., No. 882-883, 31/8/43, pp. 1-9.)

AERODYNAMICS AND HYDRODYNAMICS.

99	16507	G.B.	*A Contribution to Cascade Theory.* (J. Lockwood Taylor, Journal of the Royal Aeron. Society, Vol. 47, No. 395, Nov., 1943, pp. 397-400.)
100	16590	Germany ...	*On the Accumulation of Errors in the Multhopp Process for Lift Distribution.* (S. Kleinwachter, L.F.F., Vol. 20, No. 819, 16/10/43, pp. 261-262.)
101	16647	U.S.A. ...	*Oscillations in Closed Surge Tanks.* (A. M. Binnie, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-4.)
102	16653	U.S.A. ...	*Fluid Flow Through Two Orifices in Series II.* (M. G. Stuart and D. R. Yarnall, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-9.)
103	16678	Australia ...	*An Australian Wind Tunnel at the Aeronautical Laboratory at Fishermen's Bend.* (Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 310-316.)
104	16679	G.B.	*Equivalent Air Speed and Mach Number Chart (Data Sheet No. 10).* (Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, p. 318.)
105	16680	G.B.	*Critical Reversal Speed of a Wing (Quick Approximate Determination).* (W. H. Horton, Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 319-324.)
106	16763	U.S.A. ...	*The 20 ft. Diameter Stainless Steel Mouth of the 400 m.p.h. Wind Tunnel at Wright Field (Photo).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 264.)
107	16766	U.S.A. ...	*Wind Tunnel Manual (Small Wind Tunnels for Educational Use) (R).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 343.)
108	17068	U.S.A. ...	*Nozzles for Supersonic Flow without Shock Fronts.* (A. H. Shapire, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-8.)

AIRCRAFT, AIRSCREWS AND ACCESSORIES.

Air Cargo and Post-War Aviation.

109	16640	U.S.A. ...	*The Characteristics of Surface Cargo Transportation.* (F. Carpi, S.A.E. Preprint, 8-9/11/43, p. 1-9.)
110	16691	G.B.	*Post-War Transport.* (Electrician, Vol. 131, No. 3,415, 12/11/43, p. 480.)

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111	16698	U.S.A. ...	*The Characteristics of Air Cargo Transportation.* (E. J. Foley, S.A.E. Preprint, 8-9/11/43, p. 1-8.)
112	16731	U.S.A. ...	*The Economics of Post-War Carriage of Air Cargo.* (J. V. Sheehan, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 362-368.)
113	16927	U.S.A. ...	*Post-War Air Transport (American and British Opinions).* (Inter. Avia., No. 882-883, 31/8/43, pp. 33-34.)
114	16931	G.B.	*The Influence of Aviation on Shipbuilding.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 602.)
115	16944	G.B.	*Air Freight of the Future.* (J. P. Chaplin, Aeroplane, Vol. 65, No. 1,696, 26/11/43, pp. 614-615.)
116	16960	G.B.	*Air Transport—The Present Position and Future Policy.* (K. M. Beaumont, Aeroplane, Vol. 65, 19/11/43, pp. 586-587.)
			Civil and Special Aircraft Types.
117	16578	G.B.	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,061, 12/11/43, pp. 396-397.)
118	16700	U.S.A. ...	*Post-War Private Planes.* (A. Klemin, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 198-201.)
119	16749	U.S.A. ...	*Martin Engineer Designs New Cargo Plane.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 109.)
120	16765	U.S.A. ...	*Henry Kaiser's Cargo Seaplane (Photo).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 385.)
121	16841	G.B.	*The Case for the Flying Boat: Importance of Marine Aircraft to British Empire.* (Flight, Vol. 44, No. 1,822, 25/11/43, pp. 582-583, 595.)
122	16857	U.S.A. ...	*New 24-Passenger Douglas.* (Flight, Vol. 44, No. 1,821, 18/11/43, p. 563.)
123	16906	U.S.A. ...	*Avro York—New Air Transport.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 591.)
124	16919	U.S.A. ...	*Martin Cargo Transport (Design Fundamentals).* (Inter. Avia., No. 882-883, 31/8/43, pp. 13-14.)
125	16922	G.B.	*Miles Large Transport Aircraft Project.* (Inter. Avia., No. 882-883, 31/8/43, p. 18.)
126	17029	G.B.	*Napier-Heston, Racing Aircraft.* (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 284-285.)
127	17064	G.B.	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,063, 26/11/43, p. 437.)
			General Design and Equipment.
128	16675	U.S.A. ...	*Non-Reflecting Eyeglasses and Windshields (Method of Eliminating Light Reflections).* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1662.)
129	16697	U.S.A. ...	*Some Economic Aspects of the Commercial Use of Converted Military Aircraft.* (E. C. Wells, S.A.E. Preprint, 8-9/11/43, pp. 1-10.)
130	16699	U.S.A.	*Design Considerations of the Cargo Aeroplane.* (C. Wood, S.A.E. Preprint, 8-9/11/43, pp. 1-9.)

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131	16715	U.S.A.	...	*Glass Tanks.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 220.)
132	16729	U.S.A.	...	*An Aircraft Double Windshield—Its Development and Use.* (R. L. McBrien, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 350-355.)
133	16732	U.S.A.	...	*Problems in Wood Aircraft.* (I. C. Peterson, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 369-380.)
134	16858	G.B.	...	*The Tandem Monoplane.* (T. R. Young, Flight, Vol. 44, No. 1,821, 18/11/43, pp. 564-565.)
135	16865	U.S.A.	...	*Development of Post-War Aircraft.* (J. T. Bain, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 781-784.)
				Stability, Operating Speeds, Specifications.
136	16641	U.S.A.	...	*Pay Load versus Operating Speeds in Air Transport Operations.* (J. G. Borger, S.A.E. Preprints, 8-9/11/43, pp. 1-9.)
137	16681	G.B.	...	*The Lateral Stability of Aeroplanes—Disturbed and Controlled Motions.* (H. L. Price, Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 325-329.)
138	16734	U.S.A.	...	*Airworthiness—Speculations on Future Regulations (Excerpts from Paper).* (K. Warner, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 26, 40-41.)
				Airscrews.
139	16506	Germany	...	*Airscrew Blade Stress Due to Periodic Displacement (R.T.P.3 Translation No. 1,955).* (Journal of the Royal Aeron. Society, Vol. 47, No. 395, Nov., 1943, pp. 390-396.)
140	16619	G.B.	...	*Cristofin Plastic Covering for Hydulignum Airscrew Blades.* (British Plastics, Vol. 15, No. 174, November, 1943, p. 369.)
141	16683	G.B.	...	*Hollow Steel Airscrew Blade Production.* (H. W. Perry, Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 331-333.)
142	16761	U.S.A.	...	*Propeller Blades Shielded During Test (Transparent Plastic Shield to Guard Propeller Blades from Air Draughts During Balancing Test).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 247.)
				Helicopters, Autogyros.
143	16940	Germany	...	*Focke-Wulf Helicopter Patent.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 609.)
144	16993	Germany	...	*Autogyro Developments (Mainly Cierva).* (W. Zuerl, Der Flieger, Vol. 22, No. 9, Sept., 1943, pp. 268-273.)
145	17034	Germany	...	*Autogyro Developments (Pitcairn, Hafner, etc.).* (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 298-304.)
				Generators.
146	16356	G.B.	...	*Auxiliary Generating Plant for Aircraft.* (Engineer, Vol. 176, No. 4,582, 5/11/43, pp. 372-374.)

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147	16388	G.B. ...	... *Rotol Auxiliary Generating Plant.* (Aeroplane, Vol. 65, No. 1,693, 5/11/43, p. 516.)
148	16595	U.S.A.	... *New High Speed Aviation Generator.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, p. 39.)
			Patents.
149	15142	U.S.A.	... *Increasing the High Altitude Life of Carbon Brushes for Aeroplane Generators.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 126.)
150	16674	U.S.A.	... *Rubber De-Icer.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1660.)
151	16757	U.S.A.	... *New Techniques Applied to Anti-Icing Problem.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 225-227, 267.)
152	16789	U.S.A.	... *Aeroplane Patent Digest (Supplement No. II-A, Miscellaneous Aeronautics).* (Aeroplane Patent Digest (including Bulletin No. 244), 26/10/43, p. 1-29.)
153	16845	G.B. ...	... *A New Locking Device—Positive Locking and Quick Release by Direct or Remote Control (Ingersoll "Y" Lock).* (Flight, Vol. 44, No. 1,822, 25/11/43, p. 589.)
154	16852	G.B. ...	... *Castor Shimmy; its Prevention by the Use of Twin-Contact Tyres.* (O. J. Marstrand, Flight, Vol. 44, No. 1,821, 18/11/43, pp. 554-555.)
			Airports, Airways.
155	16840	G.B. ...	... *Gatwick Airport—Four Development Schemes.* (Flight, Vol. 44, No. 1,822, 25/11/43, pp. 578-580.)
156	16932	G.B. ...	... *Airways for Peace.* (E. P. Warner, Aeroplane, Vol. 65, No. 1,696, 26/11/43, pp. 602-603.)
157	17019	U.S.A.	... *Constructing Air Bases at Home and Abroad.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 186-187, 203-208.)
158	17020	U.S.A.	... *Analysis of Equipment at Wright Field.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 188-190, 280.)
			ENGINES AND ACCESSORIES.
			Named Types.
159	16574	G.B. ...	... *The "Bristol" Hercules Aero Engine.* (Engineering, Vol. 156, No. 4,061, 12/11/43, p. 387.)
160	16655	U.S.A.	... *The Smith Master Valve Engine and its Performance.* (B. E. Short and T. N. Smith, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-5.)
161	16908	G.B. ...	... *Hercules Development.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 591.)
162	16912	G.B. ...	... *Rotol Auxiliary Power Unit.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 574.)
163	16924	Germany	... *D.B. 601N Engine (Details of British Examination).* (Inter. Avia., No. 882-883, 31/8/43, p. 21.)

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164	16987	Germany	...	*Hirth Aircraft Engine Types* (*H.M.* 60-*H.M.* 501). (Der Flieger, Vol. 22, No. 9, Sept., 1943, pp. 252-253.)
165	17032	G.B. ...	...	*Design Detail of Merlin* 20 *and* 61, *Bristol Hercules*. (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 294-295.)
				Design and Efficiency.
166	15422	U.S.A.	...	*Tolerance and Dimensional Control*. (H. Adams, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 739-740.)
167	16212	Germany	...	*Redesign and Substitute Materials for Fittings*. (From Die Chemische Technik, Vol. 16, No. 5, 13/3/43, pp. 39-43.) (F. Petrak, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 242-243.)
168	16579	G.B. ...	...	*The Coefficient of Propulsive Efficiency*. (K. C. Barnaby, Engineering, Vol. 156, No. 4,061, 12/11/43, pp. 399-400.)
169	16846	G.B. ...	...	*A Steam Engine for Aircraft* (*Report of American Design*). (Flight, Vol. 44, No. 1,822, 25/11/43, p. 589.)
170	16861	U.S.A.	...	*An Autobiography* (*including Review of Early Experimental Work on Detonation, Side-Valve Engine, Sleeve-Valve Engine, Diesel Engines*). (H. R. Ricardo, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 765-769.)
171	17049	Germany	...	*Progress In Gear Construction*. (From Maschinenbau, Der Betrieb, Vol. 22, No. 1, January, 1943, pp. 9-13.) (H. Wittmann, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 320-322.)
172	17078	Germany	...	*The Synthesis of Link Drives* (*Use of Complex Numbers*). (E. Hackmuller, Ingenieur Archiv., Vol. 14, No. 3, 1943, pp. 141-154.)
				Accessories, including De-Icers.
173	15729	U.S.A.	...	*Advantages of Duct Seal Bands*. (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 229-230.)
174	15737	U.S.A.	...	*Reducing Normalizing Time of Engine Mount Ring to Approx. One Minute by Special Vega Fixture*. (Aero Digest, Vol. 43, No. 2, August, 1943, pp. 391-395.)
175	16134	Germany	...	*The Spiral Ring Spring*. (R. Sonntag, Ing. Archiv., Vol. 14, No. 1, 1943, pp. 53-74.)
176	16412	G.B. ...	...	*Exhaust Gas De-Icer*. (Flight, Vol. 44, No. 1,820, 11/11/43, p. 523.)
177	16539	G.B. ...	...	*Chart for Helical Gear Calculations*. (E. Byron, Machinery, Vol. 63, No. 1,620, 28/10/43, p. 493.)
178	16649	U.S.A.	...	*Recommended Specification for Prime-Mover Speed Governing* (*for Driving Electric Generators*). (A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-5.)
179	16676	U.S.A.	...	*Packless Flexible Fastener* (*for Flexible Hose in Aircraft Engines*). (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1672.)

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180	16702	U.S.A. ...	*New Exhaust Heat De-Icer.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 201.)
181	16736	U.S.A. ...	*Modern Filter Development as Applied to Fuel and Oil Systems of Diesel Engines (Excerpts).* (C. A. Winslow, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 26, 28.)
182	16747	U.S.A. ...	*Increasing Capacity of Ball Reciprocating Bearings.* (S. R. Thomas, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 191, 272.)
183	16873	U.S.A. ...	*Care of Cooling Systems of Liquid-Cooled Engines.* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, p. 811.)
184	16900	G.B.	*Piston Metallurgy (Investigation of German Pistons).* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 572-574.)
185	16969	Germany ...	*Developments in Piston Design.* (E. Mahle, Aluminium, Vol. 25, No. 4, April, 1943, pp. 171-174.)
			Thermodynamics, Cold Starting.
186	16604	U.S.A. ...	*Use of Glow Plugs in Cold Starting Diesel Engines.* (A. F. Klingner, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 28-29, 64.)
187	16730	U.S.A. ...	*Cold-Starting Tests on Diesel Engines.* (H. R. Porter, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 356-361, 368.)
188	17040	Denmark ...	*Thermodynamic Possibilities of a Compound Diesel.* (From Ingenioren, Maskinteknik, Copenhagen, 7/8/43, pp. 89-95.) (J. L. Mansa, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 307-308.)
			Turbines and Oil Engines.
189	16622	G.B.	*Oil Engine Outputs.* (Engineer, Vol. 176, No. 4,584, 19/11/43, p. 406.)
190	16646	U.S.A. ...	*Gas Turbines and Turbo-Superchargers (including Bibliography).* (S. A. Moss, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-13.)
191	16777	G.B.	*The Efficiencies of Combustion Turbines.* (S. J. Davies and M. I. Fawzi, Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 401-403.)
192	17045	Germany ...	*Steam or Gas Turbine?* (From Die Wärme, Vol. 65, No. 49, 5/12/42, pp. 419-425.) (O. Martin, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 313-314.)
193	17046	Germany ...	*Energy Conversion in Gas and Oil Turbines.* (From Die Wärme, Vol. 66, No. 15, June, 1943, pp. 139-142.) (W. Nusselt, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 314-316.)
194	17056	G.B.	*The Efficiencies of Combustion Turbines (Contd.).* (S. J. Davies and M. I. Fawzi, Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 421-424.)
195	17071	U.S.A. ...	*Bursting Tests of Steam Turbine Disc Wheels.* (E. L. Robinson, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-8.)

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			Boilers.
196	15819	U.S.A. ...	*Fuel Oil Pressure Control Valves (for Boilers).* (R. W. Hiteshue, Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 397-403.)
197	16575	G.B. ...	... *The Fouling of Boiler Tube Surfaces.* (Engineering, Vol. 156, No. 4,061, 12/11/43, pp. 391-392.)
198	16624	G.B. ...	... *Hydrogen in Boilers.* (R. J. Lingley, Engineer, Vol. 176, No. 4,584, 19/11/43, p. 409.)
199	17063	G.B. ...	... *The Fouling of Boiler Tube Surfaces (Contd.).* (W. F. Harlow, Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 424-425.)
200	17074	U.S.A.	... *Natural Circulation Test Results on the 2,500 Psi Twin Branch Boiler.* (W. H. Rowand and T. B. Allardice, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-5.)
			Flow Fan.
201	16593	U.S.A.	... *Light Weight Axial Flow Fan.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, p. 39.)
			FUELS AND LUBRICANTS.
			Fuels (General).
202	16573	G.B. ...	... *An Organised Fuel Policy.* (E. W. Smith, Engineering, Vol. 156, No. 4,061, 12/11/43, pp. 385-386.)
203	16581	G.B. ...	... *Modern Refining Practice—New Methods of Construction and Erection of Large Fractionating Towers.* (Petroleum Times, Vol. 47, No. 1,207, 30/10/43, pp. 588-589.)
204	16583	G.B. ...	... *Home Produced Fuels (Presidential Address at the Institute of Fuel).* (E. W. Smith, Petroleum Times, Vol. 47, No. 1,207, 30/10/43, pp. 592-594.)
205	16643	U.S.A.	... *Military Ground Forces Fuels and Lubricants.* (J. A. Richardson, S.A.E. Preprint, 4-5/11/43, pp. 1-6.)
206	16779	G.B. ...	... *An Organised Fuel Policy (Contd.).* (E. W. Smith, Engineering, Vol. 156, No. 4,062, 19/11/43, p. 405.)
207	16788	U.S.A.	... *Future for Diesel Engine Fuels.* (A. L. Foster, A.S.M.E. Preprint, Nov. 29-Dec. 3, 1943.)
			Gaseous Fuels.
208	15680	G.B. ...	... *I.A.E. Fuel and Lubricant Research (Producer Gas and Waste Oil Reclamation, etc.).* (Petroleum Times, Vol. 47, No. 1,207, 30/10/43, pp. 580-582.)
209	16656	U.S.A.	... *Function-Fitted Combustion—the Implications of a New Concept of Industrial Gas Utilisation.* (H. W. Smith, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-5.)
210	16720	U.S.A.	... *Producer Gas Developments in Brazil.* (Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 225-226.)

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211	17042	Germany ...	*Rail Car with Charcoal Gas Producer.* (From Deutsche Motor-Zeitschrift, Vol. 20, No. 3, March, 1943, pp. 80-82.) (F. Kralik, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 310-311.)
212	17050	Germany ...	*Compressed Gas for Motor Vehicles.* (From Brennstoff und Wärmewirtschaft, Vol. 25, No. 3, March, 1943, pp. 45-49.) (E. Soens, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 322-323.)
			Coals, Pulverised Fuels.
213	16657	U.S.A. ...	*Test Methods for Rating the Performance of Domestic Stoker Coals.* (R. J. Helfinstine, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-8.)
214	16658	U.S.A. ...	*Laboratory and Field Tests on Coal-in-Oil Fuels.* (J. F. Barkley and others, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-12.)
215	17070	U.S.A. ...	*The Flow Characteristics of Coal-Ash Slags in the Solidification Range.* (W. T. Reid and P. Cohen, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-15.)
216	17077	U.S.A. ...	*Pulverized Coal-Fired Boiler Furnaces, Public Service Electric and Gas Co., New Jersey.* (H. Weisberg, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-13.)
			Oils and Lubricants.
217	16518	G.B.	*The Solvent Extraction of Lubricating Oils (with Discussion).* (H. T. Meulen, Journal of the Inst. of Petroleum, Vol. 29, No. 237, Sept., 1943, pp. 237-252.)
218	16535	G.B.	*Lubrication at Low Rubbing Speed.* (Machinery, Vol. 63, No. 1,620, 28/10/43, p. 481.)
219	16582	G.B.	*War Progress of Soviet Oil Industry.* (V. Dudavsky, Petroleum Times, Vol. 47, No. 1,207, 30/10/43, p. 590.)
220	16642	U.S.A. ...	*Corrosion Preventive Oil and Aircraft Engine Preservation.* (A. P. Ayers, S.A.E. Preprint, 4-5/11/43, pp. 1-6.)
221	16660	U.S.A. ...	*Potential Service Performance of Lubricating Oils—Laboratory Evaluation.* (G. W. Waters and E. C. Larson, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 9, 15/9/43, pp. 550-559.)
222	16672	U.S.A. ...	*Detergent Type Lubricating Oil for Low-Speed Diesel Engines.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1631.)
223	16690	G.B.	*Transformer Oil—Care and Treatment to Reduce Breakdown Due to Acidity.* (Electrician, Vol. 131, No. 3,415, 12/11/43, pp. 479-480.)
224	16695	U.S.A. ...	*Oil Aeration (Pressure Pump Failure at High Altitude).* (R. J. S. Pigott, S.A.E. Preprint, 4-5/11/43, pp. 1-12.)

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225	16735	U.S.A. ...	*Boundary Film Lubrication (Excerpts from Paper).* (A. W. Burwell, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 26, 39.)
226	16784	G.B.	*Care and Treatment of Transformer Oil.* (Engineering, Vol. 156, No. 4,062, 19/11/43, p. 418.)
227	16872	U.S.A. ...	*Natural Fats as Lubricants—Some Lubricating Characteristics of Natural Fats Under Conditions of Non-Fluid Friction.* (E. M. Kipp, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 809-811.)

THEORY OF ELASTICITY.

Stresses in Beams and Plates.

228	15695	G.B.	*The Simple Trussed Beam.* (J. J. O'Donovan, Engineering, Vol. 156, No. 4,057, 15/10/43, p. 303.)
229	16444	Germany ...	*The Form Coefficient of Stepped Shafts Under Torsion as Determined by Micro Extensometer Measurements.* (A. Wegand, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 217-219.)
230	16584	Germany ...	*Experiments on the Effects of Transverse Holes, Splines and Diameter Changes on the Torsional Fatigue Strength of Shafts.* (W. Herold, Z.V.D.I., Vol. 81, No. 18, 1/5/37, pp. 505-509.)
231	16587	Germany ...	*Bending Tests on the Static Load Carrying Capacity of Large Double T Girders Made of Various Light Alloys.* (A. Thum and R. Z. Von Mantcuffel, L.F.F., Vol. 20, No. 819, 16/10/43, pp. 242-254.)
232	16651	U.S.A. ...	*Deflection of Uniformly Loaded Circular Plates.* (F. C. W. Olson, A.S.M.E Preprints, Nov. 29-Dec. 3, 1943, pp. 1-2.)
233	17053	Switzerland ...	*Load Tests on Bearing Supports of 27,500 K.V.A. Hydro-Electric Units.* (From Bulletin Secheren, Geneva, No. 14, 1942, pp. 7-10.) (Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 327-329.)
234	17075	U.S.A. ...	*Stress Coefficients for Rotating Discs of Conical Profile.* (K. E. Bisshopp, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-9.)
235	17079	Germany ...	*The Buckling of a Circular Ring Plate of Variable Thickness Undershear.* (K. Federhofer and H. Egger, Ingenieur Archiv., Vol. 14, No. 3, 1943, pp. 155-166.)
236	17080	Germany ...	*The Infinite Elastically Mounted Beam Under the Influence of a Load Moving Uniformly.* (J. Dorr, Ingenieur Archiv., Vol. 14, No. 3, 1943, pp. 167-192.)

Strength of Screws and Wires.

237	15416	U.S.A. ...	*Machine Screws. Fastening Strengths in Various Materials.* (A. C. Millard, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 701-707.)

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238	16880	U.S.A. ...	*Effect of Screw Threads on Fatigue.* (R. G. Sturm, Mechanical Engineering, Vol. 65, No. 11, November, 1943, p. 824.)
239	17044	Germany ...	*Friction of Wire Ropes on Driving Pulleys.* (From Z.V.D.I., Vol. 86, No. 35-36, 5/9/42, p. 554) (L. Klein, Engineers' Digest, Vol. 4, No. 11, November, 1943, p. 312.)
240	17052	Germany ...	*Natural Frequency of Oscillation of Spring Mounted Machines.* (From Z.V.D.I., Vol. 6, No. 41-42, 17/10/42, pp. 633-637.) (K. DeGruben, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 324-327.)
			General Stresses and Deformation.
241	15373	G.B.	*Controlling the Effect of Contraction and Included Stresses in Welded Structures.* (A. E. Berriman, The Institute of Welding Quarterly Trans., Vol. 5, No. 2, April, 1942, pp. 67-73.)
242	15430	G.B.	*Stress at Elevated Temperatures.* (W. Wadkins, Mechanical World, Vol. 114, No. 2,961, 1/10/43, p. 391.)
243	15638	Switzerland ...	*The Design of Autoclave Flanges (I).* (R. V. Band, Schweizer Archiv., Vol. 8, No. 3, March, 1942, pp. 67-76.)
244	15647	Switzerland ...	*The Design of Autoclave Flanges (IV). (Worked Out Example.)* (R. V. Band, Schweizer Archiv., Vol. 8, No. 4, April, 1942, pp. 122-129.)
245	16650	U.S.A. ...	*Shrink-Fit Stresses and Deformations.* (A. W. Rankin, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-9.)
246	16737	U.S.A. ...	*Practical Application of Stress Strain Theory in Fabrication of Aircraft Parts (Excerpts from Paper).* (F. O. Hoffman, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 27, 39-40.)
247	17048	Germany ...	*Efficient Use of Materials in Design by Means of Correct Stressing.* (From Z.V.D.I., Vol. 86, No. 25-26, 27/6/42, pp. 385-395.) (A. Erker, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 317-320.)
			MATERIALS.
			A. Properties.
			Al. and Mg. Alloys.
248	15620	Switzerland ...	*Fatigue Strength of Aluminium and its Alloys.* (R. Irman, Schweizer Archiv., Vol. 8, No. 2, February, 1942, pp. 52-64.)
249	15634	Switzerland ...	*Experience with New Materials (High Grade Cast Iron, Steel Castings, Magnesium, Plastics, Cutting Oils).* (H. Stager, Schweizer Archiv., Vol. 8, No. 6, June, 1942, pp. 178-197.)
250	15720	U.S.A. ...	*Aluminium for the Coming Air Age.* (R. S. Reynolds, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 188-189, 307.)

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251	16555	U.S.A. ...	*Extracting Magnesium from Sea Water.* (Trade Winds, Vol. 7, No. 1, August, 1943, pp. 14-16, 18.)
252	16628	G.B.	*Effects of Precipitation Treatment of Binary Magnesium-Aluminium Alloys (Part I).* (F. A. Fox and E. Lardner, Metal Industry, Vol. 63, No. 21, 19/11/43, pp. 322-325.)
253	16822	G.B.	*Aluminium in the Construction of Rolling Stock.* (L. P. Dudley, Light Metals, Vol. 6, No. 70, November, 1943, p. 521.)
254	16823	G.B.	*Superheating of Magnesium.* (Light Metals, Vol. 6, No. 70, November, 1943, pp. 528-529.)
255	16825	G.B.	*Aluminium in Automobiles.* (E. V. Pannell, Light Metals, Vol. 6, No. 70, November, 1943, pp. 534-536.)
256	16826	G.B.	*Aluminium-Wool-Rubber Brake Linings.* (Light Metals, Vol. 6, No. 70, November, 1943, pp. 536-537.)
257	16827	G.B.	*Aluminium in Plant and Equipment for the Chemical Industry.* (Light Metals, Vol. 6, No. 70, November, 1943, pp. 538-557.)
258	16831	G.B.	*Identification of Constituents of Aluminium Alloys (Booklet issued by the Aluminium Co. of America).* (Light Metals, Vol. 6, No. 70, November, 1943, p. 562.)
259	16832	G.B.	*Aluminium Packaging in War.* (Light Metals, Vol. 6, No. 70, November, 1943, p. 563.)
260	16833	Germany ...	*Prevention of Cathodic Fogs During the Electrolysis of Fused Magnesium Chloride.* (Light Metals, Vol. 6, No. 70, November, 1943, p. 564.)
261	16885	G.B.	*Effects of Precipitation Treatment of Binary Magnesium-Aluminium Alloys (Contd.).* (F. A. Fox and E. Lardner, Metal Industry, Vol. 63, No. 22, 26/11/43, pp. 340-342.)
262	16890	G.B.	*Flux for Magnesium.* (Metal Industry, Vol. 63, No. 22, 26/11/43, p. 348.)
263	16965	Germany ...	*The Behaviour of Pure and Very Pure Aluminium Towards Concentrated Nitric Acid.* (L. Reschke and K. Geier, Aluminium, Vol. 25, No. 4, April, 1943, pp. 149-156.)
264	16966	Germany ...	*Weld Cracks in Mg.-Mn.-Ce. Alloys Reduced by Addition of Al.* (H. Mader and F. Laves, Aluminium, Vol. 25, No. 4, April, 1943, pp. 137-159.)
265	16967	Germany ...	*Effect of Rate of Deformation on the Upsetting (Head Formation) of Light Alloy Rivet Wire.* (E. V. Rajakovies and A. Teubler, Aluminium, Vol. 25, No. 4, April, 1943, pp. 159-164.)
266	16968	Germany ...	*Aluminium Piston Alloy K.A.E. 3212/13 (Mahle 124 H) Containing Only .5 per cent. Cu. and .5 per cent. Ni.* (E. Meyer-Rassler, Aluminium, Vol. 25, No. 4, April, 1943, pp. 165-171.)

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267	16070	Germany ...	*Copper and Aluminium as Electric Conductors, with Special Reference to Motors, Generators and Transformers.* (H. Plattner, Aluminium, Vol. 25, No. 4, April, 1943, pp. 174-178.)
268	16980	Germany ...	*Technology of Aluminium—4th Edition (Book Review).* (A. V. Zeerleder, Aluminium, Vol. 25, No. 10, October, 1943, p. 338.)
269	17051	Germany ...	*The Production of Aluminium from Blast Furnace Slags.* (From Stahl und Eisen, Vol. 62, No. 35, 27/8/42, pp. 735.) (W. E. Krebs, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 323-324.)
			Iron and Steel.
271	15377	Germany ...	*Recent Developments of Steel St. 52 for Steel Structures. (R.T.P.3 Translation No. 1,318.)* (E. H. Schulz and D. W. Bischof, The Institute of Welding Quarterly Trans., Vol. 5, No. 3, July, 1942, pp. 136-142.)
272	15612	Germany ...	*The Manufacture of Ferro Alloys in Sweden (Silicon, Tungsten, Molybdenum).* (E. Richter, Gas und Electro Warme, Vol. 1,943, No. 3, June, 1943, pp. 59-60.)
273	15933	G.B.	*Boron in Ferrous Metallurgy.* (N. F. Tisdale, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 122-126.)
274	16053	U.S.A. ...	*Steel Chemicals (for Surface Treatment, etc.).* (Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 177-178.)
275	16117	U.S.S.R. ...	*Wear Resistance of Cast Iron Under Reciprocating Stress.* (E. M. Rosenberg, Metal Industries Review, Vol. 19, No. 7, July, 1939, pp. 32-38.)
276	16214	Germany ...	*Notched Bar Impact Strength of Steels for Aircraft Production.* (From Luftfahrtforschung, Vol. 20, No. 3, 16/4/43, pp. 57-62.) (W. Stiedr and W. Toedter, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 245-246.)
277	16313	Germany ...	*Notched Bar Impact Strength of Steels for Aircraft Production.* (L.F.F., Vol. 20, No. 3, April, 1943, pp. 57-62.) (W. Stieda and W. Toedter, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 261-262.)
278	16443	Germany ...	*The Influence of N_2 on the Properties of Some Austentic Valve Steels.* (H. Cornelius and K. Fahsel, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 210-216.)
279	16546	G.B.	*Acid Resisting Metal for Plant and Equipment (High Silicon Iron).* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, p. 507.)
280	16588	Germany ...	*Comparison of Mechanical Properties of Some Weldable High Tensile Steel Containing Little or no Chromium.* (H. Cornelius, L.F.F., Vol. 20, No. 819, 16/10/43, pp. 255-260.)

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281	16684	G.B.	*Strength Factors of Steels—A Graphical Method of Correlating Ultimate Tensile Strength, Proof Stress, Brinell and Izod Figures.* (G. Fitzgerald-Lee, Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, pp. 334-335.)
282	16892	Germany ...	*Variation of Elastic Modulus of Iron-Nickel Alloys with Temperature.* (W. Koster, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 194-199.)
283	17043	G.B.	*High Strength Structural Steels.* (G. P. Contractor and S. Visvanathan, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 311-312.)
			Non-Ferrous Metals.
284	15136	U.S.A. ...	*Lead-Alloy Coating for Copper Wire.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 114.)
285	15137	U.S.A. ...	*Beryllium-Copper Improved by New Heat Treatment.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 114.)
286	15169	Germany ...	*Determination of Lead Sensitivity.* (E. Singer, Ol and Kohle, Vol. 37, No. 40, 22/10/43, pp. 804-806.)
287	15350	G.B.	*Modern Electrical Resistance Alloys.* (A. G. Arend, Electrician, Vol. 131, No. 3,406, 10/9/43, pp. 250-252.)
288	15376	G.B.	*The Effect of Sodium and Potassium Silicates on the Properties of Weld Metal.* (G. Haim and D. McAllister, The Institute of Welding Quarterly Trans., Vol. 5, No. 3, July, 1942, pp. 133-135.)
289	15464	Germany ...	*Metals and Alloys of the Rare Earth Group.* (L. Rolla and others, Z.J. Metallk., Vol. 35, No. 2, February, 1943, pp. 29-42.)
290	15499	G.B.	*Sulphur and Mercury—Industrial Uses.* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 12.)
291	15611	Germany ...	*The Manufacture of Copper Wire from Copper Ingots.* (C. Scharwachter, Gas und Electro Warme, Vol. 1,943, No. 3, June, 1943, pp. 56-58.)
292	15648	Germany ...	*British Magnesium and Phosphorus Incendiaries.* (H. Kluth, Der Adler, No. 7, 6/4/43, pp. 204-205.)
293	15804	U.S.A. ...	*Taking Tin Out of Babbitts.* (A. H. Phelps, Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 432.)
294	15934	G.B.	*The Growing Importance of Manganese.* (Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 127-130.)
295	16107	U.S.A. ...	*Polarographic Analysis of Copper and Zinc in Brass Plate—A Rapid Control Method.* (W. P. Tyler and W. E. Brown, Industrial and Engineering Chemistry, Vol. 15, No 8, 17/8/43, pp. 520-523.)
296	16120	U.S.A. ...	*Thermal Expansion of Some Industrial Copper Alloys.* (P. Hidnert and G. Dickson, National Bureau of Standards, Vol. 31, No. 2, August, 1943, pp. 77-82.)

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297	16320	G.B.	*Thermal Expansion of Copper Alloys.* (T.N. Bulletin 316, Aug., 1943, pp. 61-62.) (Engineers' Digest, Vol. 4, No. 9, Sept., 1943, p. 274.)
298	16632	G.B.	*A.S.T.M. Committee's Reports on Non-Ferrous Metals and Solders.* (Metal Industry, Vol. 63, No. 21, 19/11/43, p. 332.)
299	16791	Germany ...	*On the Ductility of Press Working Zinc Alloy.* (A. Burkhardt, Metallwirtschaft, Vol. 19, No. 45, pp. 1001-1005.)
300	16809	G.B.	*Slip and Twinning in Single Crystal of Mercury.* (A. Fisher, Nature, Vol. 152, No. 3,863, 13/11/43, p. 567.)
301	16824	G.B.	*Beryllium Windows for X-Ray Tubes.* (Light Metals, Vol. 6, No. 70, November, 1943, pp. 530-533.)
302	16884	G.B.	*Lead Base Bearing Metals.* (Metal Industry, Vol. 63, No. 22, 26/11/43, p. 339.)
303	16893	Germany ...	*Crystal Structure of Bi2 Pt and Su2 Pt.* (H. J. Wallbaum, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 200-201.)
304	16895	Germany ...	*Equilibrium Conditions of the Nickel Tin System.* (T. Henmann, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 206-211.)
305	16896	Germany ...	*Temperature ($-30° \rightarrow 200°C$.) Effect on Impact Strength of Zinc Alloys (Notched and Plain).* (F. E. Jesnitzer and W. Hofmann, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 211-212.)
306	16915	G.B.	*Steel Silver Alloy.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 598.)
			Plastics and Resins.
307	14899	Switzerland ...	*Plastic Insulating Filling Compounds for Impregnating Paper and Fabrics.* (H. Stager and J. P. Bohnerblust, Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 29-37.)
308	15190	G.B.	*Paper-Base Plastic.* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, p. 355.)
309	15226	Germany ...	*Surface Currents on Plastics.* (From Kunststoffe, Vol. 32, No. 3, March, 1942, pp. 77-81.) (B. Viewing and H. Klingelhöffer, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 207-220.)
310	15498	G.B.	*New Range of Fibres.* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, pp. 11, 47.)
311	15501	G.B.	*New Insulating Material for Cables.* (Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 28.)
312	15504	G.B.	*Heat Resisting Plastic Material.* (E. Yarsley, Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 41.)
313	15587	Germany ...	*Synthetic Resins in Aircraft Construction with Classification Table for German Plastics.* (F. Wehrse, Der Flieger, Vol. 21, No. 3, March, 1942, pp. 80-81.)

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314	15627	Switzerland ...	*Synthetic Plastic as Replacement Materials.* (P. Viereg, Schweizer Archiv., Vol. 8, No. 9, September, 1942, pp. 291-298.)
315	15630	Switzerland ...	*Connection Between Structure and Strength Characteristics of Compressed Phenolplastics.* (W. Siegfried, Schweizer Archiv., Vol. 8, No. 8, August, 1942, pp. 255-262.)
316	15717	U.S.A. ...	*Engineering Aspects of Plastics.* (H. Sang, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 163-175, 212, 301-305.)
317	15822	U.S.A. ...	*Some Steps in the Conservation of Critical Materials—an Attempt to Substitute Phenol for Cresol in Certain Laminated Plastics.* (J. B. Lumsford, Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 481-516.)
318	15895	U.S.A. ...	*Molecular Weights of High Polymers.* (M. L. Huggins, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 980-986.)
319	15924	U.S.A. ...	*A New Phenol-Resin Glue for Wood (Cascophen).* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, pp. 74-75.)
320	15944	G.B.	*Transparent Templates.* (Machinery, Vol. 63, No. 1,618, 14/10/43, p. 435.)
321	16061	G.B.	*Plastic Bodywork (Part II). A Detailed Consideration of Materials and Their Characteristics.* (W. Nicholls, Automobile Engineer, Vol. 33, No. 441, Oct., 1943, pp. 405-410.)
322	16205	Switzerland ...	*Glueing of Pressspahn.* (From Bulletin des Schweis. Elektrotechn. Vereins, Vol. 34, No. 2, 27/1/43, pp. 50-52.) (H. Tschudi, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 230-231.)
323	16374	U.S.A. ...	*Lumarith Sheeting Coated with Adhesive for Protecting Valuable Maps.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, p. 62.)
324	16469	G.B.	*Metallizing Plastics.* (E. E. Halls, Plastics, Vol. 7, No. 78, Nov., 1943, pp. 486-495, 507.)
325	16470	Germany ...	*Effect of Weathering and Climatic Changes on Plastic Sealing Plates and Cable Fixings for Telephones.* (From Elektr. Nachr. Techn., 1942, No. 19, p. 199.) (Schulze, Plastics, Vol. 7, No. 78, Nov., 1943, p. 496.)
326	16471	G.B.	*Electrical Uses of Plastics.* (Plastics, Vol. 7, No. 78, Nov., 1943, p. 496.)
327	16472	G.B.	*Synthetics for Wire Insulation.* (Plastics, Vol. 7, No. 78, Nov., 1943, p. 496.)
328	16475	G.B.	*Hammers with Plastic Anvils.* (Plastics, Vol. 7, No. 78, Nov., 1943, p. 497.)
329	16476	G.B.	*New Type Screws and Screw Inserts of Plastics.* (Plastics, Vol. 7, No. 78, Nov., 1943, p. 497.)
330	16479	G.B.	*Resinoids and Other Plastics as Film Formers. XXI—Mathematics of Polymerization.* (B. J. Brajnikoff, Plastics, Vol. 7, No. 78, Nov., 1943, pp. 515-526.)

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331	16570	G.B.	...	*Structure and Physical Properties of Plastics. Part I—Theoretical.* (R. F. Tuckett, Chemistry and Industry, Vol. 62, No. 46, 13/11/43, pp. 430-432.)
332	16599	U.S.A.	...	*Marvinol—A New Elasto-Plastic.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 44, 62.)
333	16609	G.B.	...	*Paper Based Plastics.* (British Plastics, Vol. 15, No. 174, November, 1943, p. 321.)
334	16610	G.B.	...	*High Frequency Heating for Plastics—An Explanation of its Principles and Uses.* (British Plastics, Vol. 15, No. 174, November, 1943, pp. 322-326.)
335	16612	G.B.	...	*Plastics and Ordnance Requirements.* (E. T. McBride, British Plastics, Vol. 15, No. 174, November, 1943, pp. 840-842.)
336	16613	G.B.	...	*Plastics Water Pipes.* (British Plastics, Vol. 15, No. 174, November, 1943, p. 342.)
337	16614	G.B.	...	*A.S.T.M. New Standards for Plastics.* (British Plastics, Vol. 15, No. 174, November, 1943, p. 352.)
338	16615	G.B.	...	*Modern Plastics for Insulation (Properties and Uses of P.V.C.).* (J. Veit, British Plastics, Vol. 15, No. 174, November, 1943, pp. 353-360.)
339	16616	G.B.	...	*Plastics Aid in Conserving Metal for Badges and Buttons.* (British Plastics, Vol. 15, No. 174, November, 1943, pp. 361-362.)
340	16617	G.B.	...	*British Plastics Plant—A New Extruding Machine and Injection Moulding Press.* (British Plastics, Vol. 15, No. 174, November, 1943, pp. 364-367.)
341	16618	G.B.	...	*Plastics Emergency Water Light.* (British Plastics, Vol. 15, No. 174, November, 1943, p. 368.)
342	16645	U.S.A.	...	*Surface Fatigue of Plastic Materials (Progress Report No. 16 of the A.S.M.E. Special Research Committee on Strength of Gear Teeth).* (E. Buckingham, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-10.)
343	16696	U.S.A.	...	*Characteristics of Plastics as Engineering Materials (First Draft).* (W. F. Bartoe and D. S. Frederick, S.A.E. Preprint, 10/11/43, pp. 1-5.)
344	16721	U.S.A.	...	*Plastic Envelope for Blue Prints, Maps, etc.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 226.)
345	16724	U.S.A.	...	*New Type of Adhesive for Bonding Thin Sheets of Wood (Combines Thermo-Plastic and Thermo-Setting Qualities).* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 229.)
346	16780	G.B.	...	*Synthetic Materials.* (Engineering, Vol. 156, No. 4,062, 19/11/43, p. 412.)
347	16828	G.B.	...	*Lamp Screening for A.R.P. (Use of Plastic and Aluminium).* (Light Metals, Vol. 6, No. 70, November, 1943, p. 558.)
348	16830	G.B.	...	*Bonding Metal with Adhesives (the Cycloweld Process).* (Light Metals, Vol. 6, No. 70, November, 1943, p. 560.)
349	16898	G.B.	...	*Plastics Drop Hammer Punch.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 565.)

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350	17036	Germany	...	*Vidal Plastic Construction in the U.S.A.* (Der Flieger, Vol. 22, No. 10, Oct., 1943, p. 307.)
351	17059	G.B.	...	*Engineering Plastics.* (Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 431-432.)

Rubber (Nat. and Syn.) and Leather.

352	15134	U.S.A.	...	*Experimental Plantings of Golden Rod for Rubber Production.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 111.)
353	15138	U.S.A.	...	*Synthetic Rubber To-day (Review of Most Important Products).* (Scientific American, Vol. 169, No. 3, September, 1943, pp. 115-117.)
354	15143	U.S.A.	...	*Substitute Sponge Rubber Derived from Linoleic Acid.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 126.)
355	15304	U.S.A.	...	*The Rubber Development Corporation (Wild Rubber from South America).* (Inter. Avia., No. 875, 7/7/43, pp. 19-20.)
356	15678	U.S.A.	...	*Rubber Production in the U.S.A.* (Inter. Avia., No. 876-877, 19/7/43, pp. 16-17.)
357	14857	U.S.A.	...	*The Present Status of Synthetic Rubber.* (L. B. Sebrell, Industrial and Engineering Chemistry (Indust. Edition), Vol. 35, No. 7, July, 1943, pp. 736-750.)
358	15888	U.S.A.	...	*Effect of Petroleum Products on Neoprene Vulcanizates.* (D. F. Fraser, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 947-948.)
359	15889	U.S.A.	...	*Bend, Brittle and Shatter Points of Rubberlike Materials.* (G. E. King, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 949-951.)
360	15890	U.S.A.	...	*Heat Resistance of Neoprene G.N. Vulcanizates.* (D. B. Forman, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 952-957.)
361	15891	U.S.A.	...	*Carbon Black in Butyl Rubber.* (L. B. Turner and others, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 958-963.)
362	15892	U.S.A.	...	*Heat Generation in Flexed Rubber.* (S. D. Gehman and others, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 964-971.)
363	15894	U.S.A.	...	*Simple Vulcanizates of Buna S and Sulphur (Physical and Chemical Properties).* (La Verne, E. Cheyney and A. L. Robinson, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 976-979.)
364	15896	U.S.A.	...	*Blends of Thiokol F.A. with Neoprene G.N., Hycar O.R.-15 and Perbunan 26.* (S. M. Martin and A. E. Laurence, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 986-991.)

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365	16106	U.S.A.	...	*Determination of Butadiene in the Presence of Other Unsaturated and Saturated Gaseous Hydrocarbons.* (J. F. Cuneo and R. L. Switzer, Industrial and Engineering Chemistry, Vol. 15, No. 8, 17/8/43, pp. 508-509.)
366	16463	U.S.A.	...	*The Rubber Programme—Present and Future.* (B. Dewey, Ind. and Eng. Chem (News Edition), Vol. 21, No. 18, 25/9/43, pp. 1503-1509.)
367	16466	U.S.A.	...	*Koroseal Sponge.* (Ind. and Eng. Chem. (News Edition), Vol. 21, No. 18, 25/9/43, p. 1552.)
368	16571	G.B.	...	*The Molecular Structure of Rubber.* (R. B. Richards, Chemistry and Industry, Vol. 62, No. 46, 13/11/43, p. 433.)
369	16639	U.S.A.	...	*Recent Progress in Synthetic Rubbers.* (S.A.E. Preprint, 10/11/43, pp. 1-5.)
370	16669	U.S.A.	...	*Canadian Production of Synthetic Rubber.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1612.)
371	16670	U.S.A.	...	*Thirty Years' Contributions to the Science of Synthetic Rubber.* (W. L. Semon, Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, pp. 1613-1619.)
372	16815	G.B.	...	*Rheology in the Textile, Leather, Shoe and Allied Trades.* (Nature, Vol. 152, No. 3,861, 30/10/43, pp. 514-515.)
373	17028	G.B.	...	*Rubber-like Plastics and Their Applications (Symposium of Papers).* (Chemistry and Industry, Vol. 62, No. 48, 27/11/43, p. 454.)
				Wood and Plywood.
374	14964	U.S.A.	...	*Making Curved Plywood (Discussion).* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 677-678.)
375	15148	U.S.A.	...	*Locking Wood Screw.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 138.)
376	15156	G.B.	...	*Fault-Finding in Aircraft Timbers.* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 53.)
377	15497	G.B.	...	*Raw Materials for Rayon. I—Wood Pulp.* (D. B. Halpern, Times Trade and Engineering, Vol. 53, No. 955, Sept., 1943, p. 11.)
378	16052	U.S.A.	...	*Progress in Wood Lamination Using Low Temperature Phenol Cluca for Shipbuilding.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 174.)
379	16464	U.S.A.	...	*New Plywood Adhesive.* (Ind. and Eng. Chem. (News Edition), Vol. 21, No. 18, 25/9/43, p. 1536.)
380	16726	U.S.A.	...	*Products of the Pine (Resin, Turpentine, etc.).* (J. M. Crowe, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 202-204.)
381	16820	G.B.	...	*Wood Utilisation (Indian Research).* (Nature, Vol. 152, No. 3,864, 20/11/43, p. 605.)
382	16911	G.B.	...	*Thermo-Setting Adhesive for Plywood.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 603.)

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			Diamonds, Sapphires, Glass.
383	15030	U.S.A.	... *Synthetic White Sapphire.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 101.)
384	16252	G.B. ...	... *Refractory Materials for Glass Making.* (J. H. Partridge, G.E.C. Journal, Vol. 12, No. 3, Feb., 1943, pp. 119-131.)
385	16315	Germany	... *Production of Hard Metal Alloys and Their Use for Replacement of Diamonds in the Drawing Industry.* (Stahl and Eisen, Vol. 62, No. 52-53, Dec., 1942, pp. 1083-1091.) (S. Hinnuber, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 266-269.)
386	16668	U.S.A.	... *Flexible Fibre Glass Sleeving.* (Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, p. 280.)
387	16901	G.B. ...	... *Glass Gauges.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 574.)
388	16910	G.B. ...	... *Diamond Turning—Experiments Carried Out on Aircraft Pistons.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 592-594.)
389	16949	G.B. ...	... *Piston Turning and Diamond Tools.* (Engineer, Vol. 176, No. 4,585, 26/11/43, pp. 431-432.)
			Concretes, Carbides.
390	14480	G.B. ...	... *The Application of Vasco-loy-Ramet (Tantalum Carbide Material.* (Mechanical World, Vol. 114, No. 2,957, 3/9/43, pp. 262-264.)
391	14560	G.B. ...	... *The "Mitia" Carbide Chart.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 215.)
392	15609	Germany	... *Silicon Carbide (Silit) Heating Elements for Electric Furnaces.* (J. Eberwein, Gas and Electro Wärme, Vol. 1,943, No. 3, June, 1943, pp. 47-51.)
393	15893	U.S.A.	... *Density of Carbon Black by Helium Displacement.* (R. P. Rossman and W. R. Smith, Industrial and Engineering Chemistry, Vol. 35, No. 9, Sept., 1943, pp. 972-976.)
394	16121	U.S.A.	... *Tensile and Other Properties of Concretes Made with Various Types of Cements.* (L. Schuman and J. Tucker, National Bureau of Standards, Vol. 31, No. 2, August, 1943, pp. 107-124.)
395	16705	U.S.A.	... *Sea-Going Concrete—U.S. Developments in Ship Building.* (E. J. Cleary, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 205-206.)
396	16723	U.S.A.	... *Concrete Protection Afforded by Freeze-Resistant Resin.* (Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 228-229.)
			Paints, Lacquers, Graphite.
397	14293	G.B. ...	... *Sticking Joints—The Use of Graphite as an Anti-Adhesive.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 379.)
398	14515	G.B. ...	... *The Structure of Graphite.* (H. Lipson and A. R. Stokes, Proceedings of the Royal Society, Vol. 181, No. 984, 24/9/42, pp. 101-105.)

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399	15147	U.S.A. ...	*Lacquer Coating Test for Locating Strains in Metal Parts* ("*Stresscoat*"). (Scientific American, Vol. 169, No. 3, September, 1943, p. 133.)
400	15619	Switzerland ...	*Reaction Changes Due to Water Absorption of Oil Lacquers Containing Red Lead.* (W. Beck, Schweizer Archiv., Vol. 8, No. 2, February, 1942, pp. 45-52.)
401	16194	G.B.	*The Treatment of Roof Glazing by Fabric Attached with Bituminous Adhesive.* (C. M. Watkins and T. A. Baker, Journal of the Society of Chemical Industry, Vol. 62, No. 9, Sept., 1943, pp. 141-144.)
402	16541	G.B.	*Development in Roll Mills for Paint Manufacture.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, pp. 491-493.)

Corrosion and General Properties of Metals.

403	14865	U.S.A. ...	*Identification of Rust on Iron and Steel.* (R. O. Clark, Industrial and Engineering Chemistry (Analyt. Edition), Vol. 15, No. 7, 19/7/43, pp. 464-465.)
404	15133	U.S.A. ...	*What is Hardness?* (S. R. Williams, Scientific American, Vol. 169, No. 3, September, 1943, pp. 109-111.)
405	15466	Germany ...	*The Stress Corrosion of Some Al.-Zn.-Mg. Alloys After Hot Age Hardening.* (W. Bungardt and G. Scheitberger, Z.J. Metallk., Vol. 35, No. 2, February, 1943, pp. 47-55.)
406	15807	U.S.A. ...	*Nomogram for Calculating Hardenability.* (C. K. Donoho and W. W. McCulloch, Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 440.)
407	15810	U.S.A. ...	*Mechanical Properties of Metal Foils.* (B. Chalmers and P. W. Seddon, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 424, 456-458.)
408	15928	G.B.	*Vitrification, Crystallinity and Fusibility of Refractories and Slags.* (J. F. Hyslop, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 83-86.)
409	16442	Germany ...	*The Corrosion of Cladded Al.-Zn.-Mg. Alloys.* (W. Bungardt, L.F.F., Vol. 20, No. 7, 20/7/43, pp. 207-209.)
410	16652	U.S.A. ...	*The Corrosion of Alloy Steels by High Temperature Steam.* (G. A. Hawkins and others, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-4.)
411	16704	U.S.A. ...	*Anti-Freeze Reconditioner Restores Anti-Rust Properties.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 204.)
412	16719	U.S.A. ...	*Rust Prevents Air in Salvaging Normandie's Equipment.* (Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 223-224.)
413	16794	Germany ...	*The Mechanics of Materials as a New Factor in the Assessment of Material Properties.* (W. Kuntze, Metallwirtschaft, Vol. 19, No. 48, pp. 1073-1081.)
414	16869	U.S.A. ...	*The Nature of Pure Metals.* (J. F. Young, Mechanical World, Vol. 65, No. 11, November, 1943, pp. 795-801.)

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415	16888	Germany ...	*Investigations of Stress Corrosion (from Zeitschrift für Metallkunde).* (G. Wasseiman, Metal Industry, Vol. 63, No. 22, 26/11/43, p. 346.)

B. Fabrication.

Cutting, Etching, Boring.

416	15946	G.B.	*Screw-Cutting Drilled Blind Holes.* (W. Cooper, Machinery, Vol. 63, No. 1,618, 14/10/43, p. 437.)
417	15962	G.B.	*Gear Box Boring Methods.* (Machinery, Vol. 63, No. 1,617, 7/10/43, pp. 411-412.)
418	16423	Germany ...	*The Influence of Scale on the Etching of Iron.* (J. Sittard, Metallwirtschaft, Vol. 19, No. 45, 8/11/40, pp. 1008-1012.)

Welding.

419	14966	U.S.A. ...	*Spot and Seam Welding Data for Low Carbon Steels.* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, p. 692.)
420	15361	G.B.	*Second Interim Report of the R. 52 Sub-Committee on the Spot Welding of Light Alloys.* (G. H. Field and others, The Institute of Welding Quarterly Trans., Vol. 6, No. 2, April, 1943, pp. 49-68.)
421	15362	G.B.	*A Development in Welded Fabrication for Marchant Shipbuilding.* (R. B. Shepheard and others, The Institute of Welding Quarterly Trans., Vol. 6, No. 2, April, 1943, pp. 69-78.)
422	15363	G.B.	*"Forged-Spot" Welding for Use in Shipbuilding and Other Constructional Work.* (G. H. Wright and others, The Institute of Welding Quarterly Trans., Vol. 6, No. 2, April, 1943, pp. 79-97.)
423	15364	G.B.	*Metallic Arc Welding of High Sulphur Free-Cutting Steels.* (T. Swinden and H. F. Tremlett, The Institute of Welding Quarterly Trans., Vol. 6, No. 1, January, 1943, pp. 1-3.)
424	15365	G.B.	*Production of Simple Spot Welds in Mild Steel Plates of $\frac{1}{4}$", $\frac{1}{8}$" and $\frac{3}{8}$" Thickness.* (J. Dearden and H. O'Neill, The Institute of Welding Quarterly Trans., Vol. 6, No. 1, January, 1943, pp. 8-23.)
425	15366	G.B.	*A Consideration of Tests to Determine the Weldability of Steels for Arc Welding.* (J. G. Ball, The Institute of Welding Quarterly Trans., Vol. 6, No. 1, January, 1943, pp. 24-46.)
426	15370	G.B.	*Standardisation of the Photography of Welds.* (E. S. van Someren, The Institute of Welding Quarterly Trans., Vol. 5, No. 1, January, 1942, pp. 1-10.)
427	15371	G.B.	*The Inspection of Welded Steel Joints in Relation to Their Mechanical Strength.* (J. Dearden, The Institute of Welding Quarterly Trans., Vol. 5, No. 2, April, 1942, pp. 47-54.)
428	15372	G.B.	*Weldability of Some Low Alloy Steel.* (J. S. Vatchagandhy and G. P. Contractor, The Institute of Welding Quarterly Trans., Vol. 5, No. 2, April, 1942, pp. 55-66.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
429	15374	G.B.	*Investigation into the Behaviour of Welded Rigid Frame Structures. The Behaviour of Stanchions Bent in Single Curvature (Third Interim Report).* (J. E. Baker and J. W. Roderick, The Institute of Welding Quarterly Trans., Vol. 5, No. 3, July, 1942, pp. 97-119.)
430	15375	G.B.	*Examination of Stress Distribution in Spot Welded Joints in Light Alloys by Means of the Brittle Lacquer Process.* (R. F. Tylecote, The Institute of Welding Quarterly Trans., Vol. 5, No. 3, July, 1942, pp. 120-132.)
431	15378	G.B.	*An Estimation of the Distribution of Shear Stress in Spot Welds.* (R. F. Tylecote, The Institute of Welding Quarterly Trans., Vol. 5, No. 3, July, 1942, pp. 143-144.)
432	15653	Switzerland ...	*Spot Welding of Al. Alloys in Aircraft Construction.* (A. V. Zeerleder, Inter. Avia., No. 879-880, 9/8/43, pp. 1-7, 11.)
433	15803	U.S.A. ...	*Test Specimens from Welded Pipe.* (J. J. Crowe, Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 432.)
434	15805	U.S.A. ...	*Rapid and Accurate Inspection of Spot Welds.* (L. L. Anderson, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 433-434, 462.)
435	15809	U.S.A. ...	*Fractures in Welded Ships.* (J. Tutin, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 448, 468-470.)
436	15935	G.B.	*The Scope of Welding.* (C. W. Brett, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 131-132.)
437	15940	G.B.	*Electronically Controlled Welding Assembly of Steel Auxiliary Fuel Drop Tanks for Fighter and Bomber Planes.* (M. W. Coker, Machinery, Vol. 63, No. 1,618, 14/10/43, pp. 421-424.)
438	16041	G.B.	*Fabricating Welding Quality Elektron. I—Protection and General Handling.* (W. K. B. Marshall, Metal Industry, Vol. 63, No. 18, 29/10/43, pp. 274-276.)
439	16166	Germany ...	*The Effect of Welding Faults on the Static and Dynamic Strength of Welded Joints of Steel St. 52 with Notes on the Limits of Fault Detection by X-Ray Examination.* (H. Koller and E. Klein, Schiff und Werft, Vol. 44-24, No. 17-18, September, 1943, pp. 257-261.)
440	16168	Germany ...	*The Welding of Cast Iron (Abstract).* (Schiff und Werft, Vol. 44-24, No. 17-18, September, 1943, p. 269.)
441	16209	Germany ...	*Welding Cracks in Chromium-Molybdenum Structural Steels.* (From Stahl und Eisen, Vol. 62, No. 26, 25/6/42, pp. 540-545.) (A. Antonioli, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 236-237.)
442	16234	G.B.	*Rightward or Leftward Welding Technique?* (W. Heiz, Sheet Metal Industries, Vol. 18, No. 199, November, 1943, pp. 1983-1986.)

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443	16292	U.S.A. ...	*Atomic-Hydrogen Welding Saves Aluminium Castings.* (Aviation, Vol. 42, No. 8, August, 1943, p. 181.)
444	16298	U.S.A. ...	*Welding of Aluminium Alloys (Data Sheet).* (Aviation, Vol. 42, No. 8, August, 1943, pp. 193-195.)
445	16371	U.S.A. ...	*G.E. Automatic Arc Welding Unit for the Welding of Magnesium and Aluminium.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 46, 92.)
446	16586	Germany ...	*Various Types of Weld Cracks and Weld Sensitivity of Steels, with Methods of Testing.* (K. L. Zeyen, L.F.F., Vol. 20, No. 819, 16/10/43, pp. 231-241.)
447	16629	G.B.	*Fusion Welding of Wrought Aluminium Alloys—I.* (Metal Industry, Vol. 63, No. 21, 19/11/43, pp. 326-328.)
448	16637	Germany ...	*New Miniature Electric Arc Welding Appliances.* (Luftwissen, No. 7, Vol. 10, July, 1943, p. 202.)
449	16785	G.B.	*Building Up and Hard Surfacing by Welding.* (W. Andrews, Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 418-419.)
450	16795	Germany ...	*Welding and Notch Sensitivity of Engineering Steels.* (Metallwirtschaft, Vol. 19, No. 48, pp. 1091-1094.)
451	16887	G.B.	*Fusion Welding of Wrought Aluminium Alloys—II.* (Metal Industry, Vol. 63, No. 22, 26/11/43, pp. 343-346.)
452	16807	G.B.	*Heavy Gauge Spot Welding.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 563-565.)
			Heat Treatment.
453	15151	G.B.	*The Heat Treatment of Aluminium Alloys.* (W. L. Morse, Aeronautics, Vol. 9, No. 2, September, 1943, pp. 34-36.)
454	15177	G.B.	*Electric Glue Heating.* (The Electrician, Vol. 131, No. 3,408, 24/9/43, pp. 297-299.)
455	15188	G.B.	*Finishing Electrolytic Plate. Effect of Momentary Melting by High Frequency Induction Heating.* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, p. 349.)
456	15533	Germany ...	*Surface Hardening with Coal-Oxygen Gas.* (A. Strothmann, Gas, Vol. 15, No. 3, March, 1943, pp. 39-44.)
457	15610	Germany ...	*Hardening and Tempering of Steel Wire and Strip Manufacture.* (K. Appel, Gas und Electro Warme, Vol. 1,943, No. 3, June, 1943, pp. 52-56.)
458	15813	U.S.A. ...	*Erosion and Heat Treating of Gun Tubes.* (Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 413.)
459	15927	G.B.	*Plane Hardening from the Metallurgical Viewpoint.* (M. L. Becker, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 71-81, 132.)
460	15932	G.B.	*Controlled Atmospheres for Heat Treatment Processes.* (S. V. Williams, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 111-121.)

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461	16213	Germany	...	*Heat Treatment of Steel from Rolling Temperature* (From Stahl und Eisen, Vol. 63, No. 20, 20/5/43, pp. 399-402.) (R. Schaefer and E. Langenbach, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 244-245.)
462	16260	G.B.	...	*Electrostatic High Frequency Heating—II.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 100E.)
463	16266	G.B.	...	*Warpage Corrected by Flame (Oxyacetylene Torch).* (C. W. Hale, Machinist, Vol. 87, No. 16, 7/8/43, p. 91.)
464	16316	Germany	...	*New Heat Treatment for the Improvement of Modern Steels.* (Stahl und Eisen, Vol. 62, No. 51, Dec., 1942, pp. 1067-1073.) (O. Kukla and others, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 269-271.)
465	16326	G.B.	...	*Air-Conditioned Furnaces.* (Metal Industry, Vol. 63, No. 19, 5/11/43, p. 292.)
466	16382	G.B.	...	*Cooling of Steel Ingots (Abstract of Paper).* (E. F. Law and V. Harbord, Engineering, Vol. 156, No. 4,060, 5/11/43, p. 374.)
467	16383	G.B.	...	*The Physical Chemistry of Open Hearth Slags (Abstract).* (J. White, Engineering, Vol. 156, No. 4,060, 5/11/43, p. 374.)
468	16510	G.B.	...	*Thin Case Hardening with Radio-Frequency Energy.* (Electronic Engineering, Vol. 16, No. 189, Nov., 1943, p. 229.)
469	16536	G.B.	...	*Forging and Heat Treatment of Gun Barrels.* (Machinery, Vol. 63, No. 1,620, 28/10/43, pp. 483-486.)
470	16550	G.B.	...	*The Sintering Process.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, pp. 518-519.)
471	16620	G.B.	...	*Local Case Hardening.* (L. G. W. Palethorpe, Engineer, Vol. 176, No. 4,584, 19/11/43, pp. 403-404.)
472	16707	U.S.A.	...	*Preventing Armour Plate from Warping During Quenching ("Pressure Quench").* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 210.)
473	16985	G.B.	...	*A Vacuum Furnace.* (W. Ehrenberg and P. Ansbacher, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, pp. 164-165.)
474	17054	Russia	...	*Bright Annealing of Steel Strip in Electrically Heated Bell-Type Furnace in a Russian Steel Mill.* (From Stahl, Moscow, No. 6, June, 1941, pp. 68-70.) (V. A. Sochinski and V. P. Gryaznov, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 329-330.)
475	17084	Germany	...	*Induction Hardening of Crankshaft Journals.* (Der Deutsche Sportflieger, Vol. 10, No. 10, October, 1943, p. 165.)
				Surface Coating and Plating.
476	15116	G.B.	...	*Re-Using Bearings.* (Sheet Metal Industries, Vol. 18, No. 198, October, 1943, p. 1758.)

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477	15135	U.S.A.	...	*Chromium Plating and its Various Applications.* (F. P. Peters, Scientific American, Vol. 169, No. 3, September, 1943, pp. 112-114.)
478	15929	G.B.	...	*Factors Affecting the Influence of Nitriding on Fatigue Strength.* (W. E. Bardgett, Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 87-101.)
479	15963	G.B.	...	*Plating or Loading Threaded Parts.* (Machinery, Vol. 63, No. 1,617, 7/10/43, p. 416.)
480	16047	G.B.	...	*American Electroplating Developments.* (Metal Industry, Vol. 63, No. 18, 29/10/43, pp. 282-284.)
481	16105	U.S.A.	...	*Determination of Tin Coating Weights.* (G. H. Bendix and others, Industrial and Engineering Chemistry, Vol. 15, No. 8, 17/8/43, pp. 501-504.)
482	16261	G.B.	...	*Hard Chromium Plating for Journals.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 101E.)
483	16310	G.B.	...	*Improving the Fatigue Strength of Machine Parts.* (Mech. Engg., Vol. 65, No. 8, August, 1943, pp. 553-563.) (S. O. Almen, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 249-255.).
484	16311	G.B.	...	*Non-Destructive Measuring Methods for Anti-Corrosive Coatings.* (Maschinenbau (Betrieb), Vol. 22, No. 1, Jan., 1943, pp. 15-18.) (D. Schenk, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 255-257.)
485	16319	G.B.	...	*Theory of the Potential and Technical Practice of Electro-Deposition.* (T.N. Bulletin 316, Aug., 1943, p. 61.) (Engineers' Digest, Vol. 4, No. 9, Sept., 1943, p. 274.)
486	16321	G.B.	...	*Plastic Treatment for Porous Castings.* (Engineers' Digest, Vol. 4, No. 9, Sept., 1943, p. 276.)
487	16358	U.S.A.	...	*Chemical Surface Treatment for Steel.* (F. C. Hirdler, Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 18-20, 84.)
488	16433	Germany	...	*Degreasing Metals Prior to Application of Organic and Inorganic Coatings.* (Metallwirtschaft, Vol. 19, No. 48, 20/11/40, p. 1102.)
489	16486	G.B.	...	*American Electroplating Developments (Papers at American Electroplaters' Convention).* (Metal Industry, Vol. 63, No. 20, 12/11/43, pp. 314-316.)
490	16623	G.B.	...	*Symposium of Papers on Reclamation of Worn Parts (Inst. of Mech. Eng. Meeting) (Discussion).* (Engineer, Vol. 176, No. 4,584, 19/11/43, pp. 407-408.)
491	16626	G.B.	...	*Symposium of Papers on Reclamation of Worn Parts (Inst. of Mech. Eng. Meeting). 1, Building Up and Hard Surfacing by Welding; 2, The Metal Spraying Process.* (W. Andrews and W. E. Ballard, Engineer, Vol. 176, No. 4,584, 19/11/43, pp. 412-414.)
492	16633	G.B.	...	*Preventing Corrosion of Zinc Coated Parts (Patent).* (Metal Industry, Vol. 63, No. 21, 19/11/43, p. 332.)
493	16708	U.S.A.	...	*Plating Problems.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 210.)

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494	16781	G.B.	... ...	*Reclamation of Worn Parts (Symposium of Papers at the Inst. of Mech. Engineers).* (Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 413-414.)
495	16889	G.B.	... ...	*American Electroplating Developments (Papers at Electroplaters Convention) (Control of Plating Baths, Salvaging Rejected Parts, etc.).* (Metal Industry, Vol. 63, No. 22, 26/11/43, pp. 347-349.)
496	16946	G.B.	... ...	*Reclamation of Worn Parts—Electro-Deposition.* (A. W. Hothersall, Engineer, Vol. 176, No. 4,585, 26/11/43, pp. 423-425.)
497	17062	G.B.	... ...	*Reclamation of Worn Parts (Symposium of Papers Held at the Institution of Mechanical Engineers (Contd.).* (Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 433-434.)
498	17067	G.B.	... ...	*The Repair of Worn or Over-Machined Parts by Electro-Deposition.* (A. W. Hothersall, Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 428-440.)
				Powder Metallurgy.
499	15642	Switzerland	...	*Metal Ceramics (Powder Metallurgy).* (W. Dawhl, Schweizer Archiv., Vol. 8, No. 3, March, 1942, pp. 95-96.)
500	15827	U.S.A.	...	*Powder Metallurgy: Its Products and Their Various Applications.* (W. D. Jones, Journal of the American Soc. of Naval Engineers, Vol. 35, No. 3, Aug., 1943, pp. 566-573.)
501	16673	U.S.A.	...	*Study of the Flammability of Powdered Metals.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, p. 1632.)
				Finishing, Grinding, Honing.
502	15123	G.B.	... ...	*Some Aspects of Metal Finishing—I.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 198, Oct., 1943, pp. 1781-1785.)
503	15195	G.B.	... ...	*Grinding Finish (Use of "Scienol" for Abrasive Wet Grinding).* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, p. 372.)
504	15814	U.S.A.	...	*Ordnance Standard Finishes.* (Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 413.)
505	15941	G.B.	... ...	*Automatic Grinding of Carbide Tipped Tools.* (Machinery, Vol. 63, No. 1,618, 14/10/43, p. 427.)
506	16537	G.B.	... ...	*The Honing of Router Cutters.* (Machinery, Vol. 63, No. 1,620, 28/10/43, p. 486.)
507	16548	G.B.	... ...	*Reconditioning Files.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, p. 509.)
				Bonding, Lapping.
508	16267	G.B.	... ...	*Machine Lapping (to obtain satisfactory seal at the joint face of the cylinder block assembly).* (Machinist, Vol. 87, No. 16, 7/8/43, pp. 92-93.)
509	16465	U.S.A.	...	*New Bonding Process.* (Ind. and Eng. Chem. (News Edition), Vol. 21, No. 18, 25/9/43, pp. 1550-1552.)

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510	16490	G.B.	*Bonded Deposits on Economiser Heating Surfaces.* (J. R. Rylands and J. R. Jenkinson, Engineer, Vol. 176, No. 4,583, 12/11/43, pp. 392-393, 389.)
			Pressing, Rolling, Drop Stamping, Extrusion and Pickling.
511	15793	G.B.	*Crushing of Turnings.* (Metal Industry, Vol. 63, No. 17, 22/10/43, p. 260.)
512	16327	G.B.	*Technique of Drop Stamping.* (Metal Industry, Vol. 63, No. 19, 5/11/43, pp. 293-294.)
513	16706	U.S.A. ...	*The Working of Metals in Presses—Review of Pressing Technique.* (F. P. Peters, Scientific American, Vol. 169, No. 5, Nov., 1943, p. 208.)
514	16793	Germany ...	*The Influence of the Type of Scale on the Pickling of Iron.* (J. Sittard, Metallwirtschaft, Vol. 19, No. 45, pp. 1008-1012.)
515	16972	Germany ...	*Grain Coarsening in the End Section of Extruded Al.-Cu.-Mg. Rods (Prevented by Stopping Extrusion Before Metal Situated in "Extreme Deformation of Zone" of Die is Ejected).* (K. Unkel, Aluminium, Vol. 25, No. 10, October, 1943, pp. 342-346.)
516	17041	Germany ...	*Power Consumption in the Rolling of Steel Shapes.* (From Stahl und Eisen, Vol. 63, No. 15, 15/4/43, pp. 295-301.) (M. Steffen, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 308-310.)
			Moulding and Casting.
517	15193	G.B.	*Centrifugal Casting. Details of Some Present-Day Methods.* (Mechanical World, Vol. 114, No. 2,960, 24/9/43, pp. 362-364.)
518	15835	U.S.A. ...	*The Strength of Cylindrical Dies.* (G. Sachs and J. D. Lubahn, Journal of Applied Mechanics, Vol. 10, No. 3, September, 1943, pp. A-147-A-155.)
519	15952	G.B.	*The Venting of Die Casting Dies.* (H. K. Barton, Machinery, Vol. 63, No. 1,616, 30/9/43, pp. 386-388.)
520	16328	G.B.	*Gas Holes in Brass Castings.* (Metal Industry, Vol. 63, No. 19, 5/11/43, p. 294.)
521	16540	G.B.	*The Die Casting of Screw-Threaded Components.* (H. K. Barton, Machinery, Vol. 63, No. 1,620, 28/10/43, pp. 497-500.)
522	16547	G.B.	*Die Casting of Magnesium Alloys.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, p. 508.)
523	16608	G.B.	*Transfer Moulding (Engineering Problems in the Process).* (M. Freund, British Plastics, Vol. 15, No. 174, November, 1943, pp. 318-321.)
524	16685	G.B.	*Developments in Rubber, Moulding (Use of Felt Core).* (Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, p. 335.)
525	16790	Germany ...	*A New Die-Casting Zinc Alloy.* (A. Burkhardt and others, Metallwirtschaft, Vol. 19, No. 45, pp. 995-1001.)
526	16876	U.S.A. ...	*Centrifugal Casting of Bushings.* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 817-818.)

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527	16877	U.S.A.	...	*Punch and Die—Newly Developed All-Plastic Punch and Non-Critical Metal Die.* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, p. 818.)
				Machines and Tools.
528	15080	G.B. ...	...	*Tool and Cutter Grinder for Tool-Room Use.* (Engineering, Vol. 156, No. 4,055, 1/10/43, pp. 267-268.)
529	15221	Germany	...	*The Influence of Riveting Tools on the Driving of Heat-Treated Light Metal Rivets.* (Werkstatt und Betrieb, Vol. 75, No. 5, Aug., 1941, pp. 189-191.) (E. Von Rajakovics and A. Teubler, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 197-199.)
530	15351	U.S.A.	...	*Autographic Load—Elongation Apparatus for Fibres.* (A. M. Sooking and H. A. Rutherford, Journal of Research, National Bureau of Standards, Vol. 31, No. 1, July, 1943, pp. 25-31.)
531	15559	Germany	...	*Tool for Cold Bending of Aluminium Tubes (Junkers).* (Der Flieger, Vol. 22, No. 7, July, 1943, p. 212.)
532	15798	U.S.A.	...	*Seamless Tube Mill Pierces Bullets for 75 mm. Gun Tubes.* (Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 414-419.)
533	15801	U.S.A.	...	*Improved Clamp for Sheet Metal Specimens.* (J. B. Burke, Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 431.)
534	15918	U.S.A.	...	*Rapid Heating Gun for Explosive Rivets.* (Autom. and Aviation Ind., Vol. 89, No. 5, 1/9/43, p. 44.)
535	15945	G.B. ...	...	*Design of Formers for Gear Profile Grinding Machines.* (L. Astin, Machinery, Vol. 63, No. 1,618, 14/10/43, pp. 436-437.)
536	15951	G.B. ...	...	*Spindle Bearings for Machine Tools.* (Machinery, Vol. 63, No. 1,616, 30/9/43, pp. 381-382.)
537	15976	G.B. ...	...	*Precision Measuring and Inspection Equipment.* (Mechanical World, Vol. 114, No. 2,962, 8/10/43, pp. 417-419.)
538	16263	G.B. ...	...	*Special Tool for Riveting in Inaccessible Places.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 86.)
539	16268	G.B. ...	...	*Water-Cooled Brazing Tongs.* (Machinist, Vol. 87, No. 16, 7/8/43, p. 94.)
540	16289	U.S.A.	...	*More Efficient Grinder for Carbide Tools.* (Aviation, Vol. 42, No. 8, August, 1943, p. 178.)
541	16369	U.S.A.	...	*Machine for Tube Bending.* (Automotive Industries, Vol. 89, No. 6, 15/9/43, pp. 42, 108.)
542	16370	U.S.A.	...	*A Pneumatic Drill with All-Plastic Housing.* (Automotive Industries, Vol. 89, No. 6, 16/9/43, p. 44.)
543	16484	G.B. ...	...	*Surface Replicas for the Light Microscope.* (V. J. Schaeffer, Metal Industry, Vol. 63, No. 20, 12/11/43, pp. 312-313.)
544	16557	G.B. ...	...	*A Wireless Sewing Machine for Thermo-Plastics.* (Machinery, Vol. 63, No. 1,621, 4/11/43, p. 507.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
545	16627	G.B.	*Pressure Die Casting Machine.* (Engineer, Vol. 176, No. 4,584, 19/11/43, p. 414.)
546	16871	Germany ...	*Simultaneous Anodic Oxidation of Large Numbers of Small Parts (Review of Device and Patents).* (E. Herimann, Aluminium, Vol. 25, No. 4, April, 1943, pp. 181-183.)
547	16914	G.B.	*Tool Reclamation—New Process for Tipping Tools.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 398.)
548	17037	Germany ...	*Simple Device for the Cold Bending of Light Alloy Tubes (Junkers).* (Der Flieger, Vol. 22, No. 10, Oct., 1943, p. 308.)
549	17038	Germany ...	*Simple Device for the Rapid Removal of Burrs in the Flared End Section of Light Alloy Pipes (Junkers).* (Der Flieger, Vol. 22, No. 10, Oct., 1943, p. 308.)
			C. Inspection.
			Quality Control.
550	14842	G.B.	*Profile Inspection.* (Mechanical World, Vol. 114, No. 2,958, 10/9/43, p. 300.)
551	15828	U.S.A. ...	*Sampling and Quality Control.* (W. E. Deming, Journal of the American Soc. of Naval Engineers, Vol. 55, No. 3, August, 1943, pp. 573-579.)
552	16903	G.B.	*Stabilised Quality Control.* (H. Howell, Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 579-584.)
			Mechanical Testing.
553	15637	Switzerland ...	*Non-Destructive Testing.* (E. Brandenberger, Schweizer Archiv., Vol. 8, No. 5, May, 1942, pp. 157-165.)
554	15812	U.S.A. ...	*Testing Metal at Bullet Speeds.* (Metal Progress, Vol. 44, No. 3, Sept., 1943, p. 412.)
555	15930	G.B.	*Jominy End-Quench Test (for Evaluating the Capacity of Steel to React to Heat Treatment).* (Metal Treatment, Vol. 10, No. 34, Summer, 1943, pp. 102-104.)
556	16119	U.S.S.R. ...	*Approximation Method for Determining the Elongation of Metals.* (A. I. Mikhailov, Metal Industries Review, Vol. 19, No. 7, July, 1939, p. 71.)
557	16312	Germany ...	*Testing of Substitute Materials for Bearings and Gears of Machine Tools.* (Maschinenbau (Betrieb), Vol. 22, No. 1, Jan., 1943, pp. 19-24.) (W. Renthe, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 258-261.)
558	16424	Germany ...	*A New Basis for the Evaluation of Engineering Materials (Theory Underlying Material Testing).* (W. Kuntze, Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1073-1080.)
559	16631	G.B.	*British Standard Test Sieves.* (Metal Industry, Vol. 63, No. 21, 19/11/43, p. 330.)
560	16786	U.S.A. ...	*Analysis of Stretch-Forming Double-Curved Sheet Metal Parts.* (R. B. Glasco and N. O. Nyklestad, A.S.M.E. Preprint, Nov. 29-Dec. 3, 1943, pp. 1-8.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
561	16835	G.B.	...	*The Control, Specialised Testing and Use of Some Modern Insulating Materials (with Discussion).* (A. R. Dunton, Journal Inst. Electrical Engineers, Vol. 90, No. 35, Pt. 1, November, 1943, pp. 463-473.)
562	16891	Germany	...	*Researches on Quaternary Alloys (Development of t-X Diagrams on Sections Through a Polythermal Tetrahedron).* (A. Schrader and H. Hanenann, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 185-193.)
563	16977	Germany	...	*Determination of Mg. in Al. Alloys of High Silicon Content (Effect of Size of Chips).* (J. Fischer, Aluminium, Vol. 25, No. 10, October, 1943, pp. 359-360.)
564	17069	U.S.A.	...	*Measurement of the Damping of Engineering Materials During Flexural Vibration at Elevated Temperatures.* (C. Schabtach and R. O. Fehr, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-7.)
				Chemical Analysis.
565	14737	G.B.	...	*Atmospheric Corrosion Tests.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 289.)
566	16767	U.S.A.	...	*Bubble Bath for Iron Filings Test (Magnetic Powder Testing).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 347-351.)
567	16802	G.B.	...	*Development in Micro-Chemical Analysis.* (E. J. Vanghan, Nature, Vol. 152, No. 3,863, 13/11/43, pp. 555-556.)
568	16806	G.B.	...	*Optical Methods of Chemical Analysis (Book Review).* (T. R. P. Gibb, Nature, Vol. 152, No. 3,863, 13/11/43, p. 552.)
569	16973	Germany	...	*The Stress-Corrosion Test for Light Alloys (Review of Methods, including New Form of Clamp for Test Sample).* (P. Brenner, Aluminium, Vol. 25, No. 10, October, 1943, pp. 346-353.)
570	16976	Germany	...	*Chemical Method for the Rapid Determination of Zinc in Al. Alloys Free from Cobalt and Containing Less than .1 per cent. Ni. (Two Hours).* (A. Staab and R. Kiby, Aluminium, Vol. 25, No. 10, October, 1943, pp. 358-359.)
571	17058	G.B.	...	*The Salt Spray Corrosion Test.* (Engineering, Vol. 156, No. 4,063, 26/11/43, p. 426.)
				Optical Analysis.
572	16351	G.B.	...	*Optical Heterogeneity of Paper Sheet. Its Measurement and Significance.* (A. King and J. Levitin, Journal of the Society of Chemistry and Industry, Vol. 62, No. 10, October, 1943, pp. 170-173.)
573	16422	Germany	...	*The Microscopical Determination of Thickness of Zinc Coatings on Screws and Complicated Parts.* (F. Fenner and L. Koch, Metallwirtschaft, Vol. 19, No. 45, 8/11/40, pp.1005-1007.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
574	16426	Germany	...	*Determination of Orientation of Al. Single Crystals by the Electron Microscope.* (H. Mahl, Metallwirtschaft, Vol. 19, No. 48, 20/11/40, pp. 1082-1085.)
575	16792	Germany	...	*A Practical Hint for the Microscopical Determination of the Thickness of Zinc (Galvanized) Coatings on Screws and Other Parts of Complicated Form.* (E. Fenner and L. Koch, Metallwirtschaft, Vol. 19, No. 45, pp. 1005-1007.)
576	16802	G.B.	...	*Electron Microscope Studies of the Capture of Airborne Particles of Single Fibres.* (E. F. Burton, Nature, Vol. 152, No. 3,862, 6/11/43, p. 540.)

X-Ray Analysis.

577	16909	G.B.	...	*Conveyor for X-Ray Inspection.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 603.)
578	16527	G.B.	...	*X-Ray Crystallography Equipment.* (Electrical Times, Vol. 104, No. 2,713, 21/10/43, pp. 484-485.)
579	16804	G.B.	...	*X-Ray Analysis Group of the Institute of Physics.* (Nature, Vol. 152, No. 3,862, 6/11/43, pp. 542-543.)
580	16883	G.B.	...	*Screening Materials for Use in Industrial Radiography.* (G. H. S. Price, Metal Industry, Vol. 63, No. 22, 26/11/43, pp. 338-339.)
581	16894	Germany	...	*Micro-Structure Examination of Coarse Grained Crystalline Materials by Means of X-Ray Diffraction Diagrams (Sample Displacement Method).* (F. Regler, Zeitschrift fur Metallkunde, Vol. 35, No. 10, Oct., 1943, pp. 202-205.)

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582	15618	Switzerland	...	*Cold Cathode Ray Oscillograph Applied to Structure Research and Absolute Measurements (Stress Distribution).* (G. Induni, Schweizer Archiv., Vol. 8, No. 2, February, 1942, pp. 35-44.)
583	15820	U.S.A.	...	*A Review of Spectrographic Analysis of Some Metals and Alloys.* (J. Sherman and J. W. Jenkins, Journal of the American Society of Naval Engineers, Vol. 55, No. 3, Aug., 1943, pp. 404-469.)
584	16661	U.S.A.	...	*Systematic Polarographic Metal Analysis (Characteristics of Arsenic, Antimony, Bismuth, Tin, Lead, Cadmium, Zinc and Copper, in Various Supporting Electrolytes).* (J. J. Lingane, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 9, 15/9/43, pp. 583-590.)
585	16974	Germany	...	*Electrolytic Method for the Rapid Determination of Zinc in Primary and Secondary Al. Alloys (Two Hours).* (A. S. Rainer and A. Zartmann, Aluminium, Vol. 25, No. 10, October, 1943, pp. 353-355.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
586	16975	Germany ...	*Colorimetric Method for the Rapid Determination of Secondary Al. Alloys by the Dithizon Method (Half Hour).* (H. Fischer and G. Leopoldi, Aluminium, Vol. 25, No. 10, October, 1943, pp. 356-357.)
587	17055	Germany ...	*Determination of Very Small Out-of-Balance Forces.* (From Elektrotechnischer Anzeiger, Berlin, Vol. 60, No. 6, 17/3/43, pp. 63-64. (Engineers' Digest, Vol. 4, No. 11, November, 1943, p. 330.)

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588	15160	G.B.	*Pressure Vibration Analyser for Checking Roughness and Frequency in Fluid Motions (Fairey Patent).* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 59.)
589	15516	U.S.A. ...	*A Weight and Balance Computer for Loading Planes.* (American Aviation, Vol. 7, No. 7, 1/9/43, p. 41.)
590	16591	Germany ...	*An Electrical Fuel Reserve Meter for Aircraft.* (R. Gerliroki and J. Zeyns, L.F.F., Vol. 20, No. 819, 16/10/43, pp. 263-267.)
591	16853	G.B.	*Tension Meters for Testing Fabric-Covered Control Surfaces and Control Cables.* (Crosby Warren, Flight, Vol. 44, No. 1,821, 18/11/43, p. 555.)
592	17026	U.S.A. ...	*Aircraft Instruments.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 198, 345-347.)

Meters, Indicators, Gauges.

593	15145	U.S.A. ...	*Humidity Indicator for Munition Crates.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 132.)
594	15557	Germany ...	*The Employment of Blind Inspectors (Audio Gauges Used).* (Der Flieger, Vol. 22, No. 7, July, 1943, p. 210.)
595	15939	G.B.	*Apparatus for the Detection of Splits in Tungsten Wire.* (D. T. O'Dell, Journal of Scientific Instruments, Vol. 20, No. 9, Sept., 1943, p. 147.)
596	15958	G.B.	*Gauge Design and Dimensioning.* (Machinery, Vol. 63, No. 1,617, 7/10/43, pp. 404-406.)
597	16597	U.S.A. ...	*New Profile Meter.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, p. 42.)
598	16659	U.S.A. ...	*The Mass Spectrometer as an Analytical Tool.* (A. W. Washburn and others, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 9, 15/9/43, pp. 541-547.)
599	16694	U.S.A. ...	*An Instrument for Recording Blow-by Gases in an Internal Combustion Engine.* (R. R. Proctor and others, S.A.E. Preprint, 4-5/11/43, pp. 1-3.)
600	16951	G.B.	*The "Talysurf" (Stylus Type Instrument for Measuring the Roughness of Surfaces).* (Engineer, Vol. 176, No. 4,585, 26/11/43, p. 434.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
601	16978	Germany ...	*Compensated Caliper Gauge for Measuring the Wall Thickness of Long Tubes (Junkers).* (Aluminium, Vol. 25, No. 10, October, 1943, p. 362.)
602	16984	G.B. ...	*An Improved Transmission Dynamometer.* (A. E. Crawford and R. K. Dundas, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, p. 163.)

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603	15694	G.B. ...	*An Electrical Tube Gauge.* (E. Fawsset, Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 301-302.)
604	16239	G.B. ...	*The Frequency Synthesizer (Abstract).* (H. J. Finden, Journal Inst. Electrical Engineers, Oct., 1943, pp. 447-450.)
605	16725	U.S.A.	*Thermal Electric Unit for Identifying Unknown Alloy Steels.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 234.)
606	16772	U.S.A.	*Direct Reading Watt Meters for Use at Radio Frequencies.* (G. H. Brown and others, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 403-410.)

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607	15401	Germany ...	*The German Army "Speech-on-Light" Signalling Apparatus.* (D. G. Hull, Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 185-187, 211.)
608	16585	Germany ...	*A Photo-Electric Extensometer with Very Small Working Base.* (E. Lehr and H. Granacher, Forschung, Vol. 7, No. 2, April, 1936, pp. 66-74.)
609	16662	U.S.A. ...	*Photo-Electric Photometer for Determining Carbon Disulphide in the Atmosphere.* (S. Silverman, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 9, 15/9/43, pp. 592-595.)
610	16773	U.S.A. ...	*A Wide Band Oscilloscope.* (E. D. Cook, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 410-419.)
611	16787	U.S.A. ...	*Electronic Instrumentation in the Textile Industry (Application of the Photo Tube).* (S. T. Hess, A.S.M.E. Preprint, Nov. 29-Dec. 3, 1943, pp. 1-6.)
612	16982	G.B. ...	*A Recording Micro-Photometer for the Examination of X-Ray Diffraction Films.* (H. R. Ronnebeck, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, pp. 154-161.)
613	16983	G.B. ...	*An Electronic Voltmeter for High Voltages.* (W. Ehrenberg and H. Hirsch, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, pp. 161-163.)

PRODUCTION.

Organisation and Control.

614	15348	G.B. ...	*Industrialization in China.* (Nature, Vol. 152, No. 3,857, 2/10/43, p. 380.)

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615	15419	U.S.A. ...	*Production Control (as Practised at Consolidated Vultee Aircraft Corp.).* (W. V. McClung, Mechanical Engineering, Vol. 65, No. 10, Oct., 1943, pp. 727-731.)
616	15424	U.S.A. ...	*Skill and Effort Rating.* (H. R. Nissley, Mechanical Engineering, Vol. 65, No. 10, October, 1943, p. 746.)
617	15787	G.B.	*The Future of the Chemical Industry.* (Lord McGowan, Chemistry and Industry, Vol. 62, No. 43, 23/10/43, pp. 402-406.)
618	16339	G.B.	*Industry and Society (I).* (Nature, Vol. 152, No. 3,860, 23/10/43, pp. 458-460.)
619	16386	G.B.	*The Future of the Chemical Industry.* (Lord McGowan, Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 377-378.)
620	16493	G.B.	*Piecework and Payment by the Hour.* (Engineer, Vol. 176, No. 4,583, 12/11/43, p. 387.)
621	16538	G.B.	*Pre-Production Planning.* (D. Tiranti, Machinery, Vol. 63, No. 1,620, 28/10/43, pp. 487-489.)
622	16569	G.B.	*A Clocking Chart for Simplifying Bonus Calculation.* (Machinery, Vol. 62, No. 1,621, 4/11/43, p. 524.)
623	16601	U.S.A. ...	*System of Employee Counselling Adopted at Douglas Aircraft Co. (Industrial Relations).* (A. C. Galbraith, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 19, 76-78.)
624	16671	U.S.A. ...	*Revision and Expansion of Operating Standards in the Chemical Industry.* (W. Von Pechmann, Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 19, 10/10/43, pp. 1621-1625.)
625	16866	U.S.A. ...	*The Continuing Need for the Conservation of Resources.* (H. Coonley, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 785-788.)
626	16868	U.S.A. ...	*Production Paces the War.* (C. E. Wilson, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 792-794.)
627	16870	U.S.A. ...	*The Management Aspects of Safety Engineering.* (F. E. Faast, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 802-804.)
628	16871	U.S.A. ...	*Management Problems in Judging Quality Conformance in the Inspection Function.* (J. M. Juran, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 305-308.)
629	16874	U.S.A. ...	*Governmental Adjustment of Labour Disputes.* (W. R. Maclaurin, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 812-813.)
630	16913	G.B.	*Unskilled Labour. Part II—Hints for Increasing Output.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 595-598.)
631	17008	U.S.A. ...	*Buying Our Warplanes (Procurement Division of Wright Field).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 126-129, 357.)

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632	17011	U.S.A. ...	*Planes by the Thousands (the Planning of American Production).* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 132-133, 312-316.)

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633	15328	G.B.	*Scientific Research in Post-War Britain.* (Engineer, Vol. 176, No. 4,578, 8/10/43, p. 285.)
634	15423	U.S.A. ...	*Training Women for Engineering Tasks.* (E. D. Howe, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 742-744.)
635	15696	G.B.	*Research: A General Survey.* (O. W. Roskill, Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 303-305.)
636	15698	G.B.	*Testing Laboratory for Insulating Materials.* (Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 307, 310.
637	15703	U.S.A. ...	*American Research Progress.* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 432.)
638	15784	G.B.	*Scientific Research in Post-War Britain.* (Engineer, Vol. 176, No. 4,580, 22/10/43, p. 317.)
639	15788	G.B.	*The Education and Training of Aeronautical Engineers.* (Journal of the Royal Aero. Society, Vol 47, No. 394, October, 1943, pp. 318-375.)
640	15880	G.B.	*Research: A General Survey (Contd.).* (O. W Roskill, Engineering, Vol. 156, No. 4,058, 22/10/43, p. 325.)
641	16123	G.B.	*Research: A General Survey.* (O. W. Roskill, Engineering, Vol. 156, No. 4,059, 29/10/43, pp. 343-345.)
642	16201	G.B.	*Science and Industry.* (Engineering, Vol. 156, No. 4,059, 29/10/43, pp.351-352.)
643	16337	G.B.	*Association of Special Libraries—Annual Conference, Sept.* 18-19. (Nature, Vol. 152, No. 3,860, 23/10/43, pp. 480-481.)
644	16572	G.B.	*Research: A General Survey.* (O. W. Roskill, Engineering, Vol. 156, No. 4,061, 12/11/43, p. 385.)
645	16577	G.B.	*Engineers and Planning (Presidential Address to the Institution of Civil Engineers).* (D. Anderson, Engineering, Vol. 156, No. 4,061, 12/11/43, pp. 394-396.)
646	16703	U.S.A. ...	*National Registry of Rare Chemicals (Assists Research Workers in Quest of Rare Chemicals).* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 204.)
647	16709	U.S.A. ...	*The Rôle of Mathematics in Engineering (the Training of Mathematicians, etc.).* (F. P. Huddle, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 211-213, 235.)
648	16778	Australia ...	*Scientific Research in Australia.* (Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 403-404.)
649	16796	G.B.	*Educational Reconstruction (V).* (Nature, Vol. 152, No. 3,862, 6/11//43, pp. 517-519.)

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650	16797	G.B.	*The Future of Technical Colleges.* (Nature, Vol. 152, No. 3,862, 6/11/43, pp. 519-520.)
651	16798	G.B.	*A Technologist Looks at the Future.* (C. R. Burgh, Nature, Vol. 152, No. 3,862, 6/11/43, pp. 523-525.)
652	16803	G.B.	*An International Information Council.* (A. F. C. Pollard, Nature, Vol. 152, No. 3,862, 6/11/43, pp. 541-542.)
653	16805	G.B.	*Educational Reconstruction (VI).* (Nature, Vol. 152, No. 3,863, 13/11/43, pp. 545-548.)
654	16810	G.B.	*The University in Modern Life.* (Nature, Vol. 152, No. 3,863, 13/11/43, pp. 548-550.)
655	16811	G.B.	*Educational Reconstruction (IV).* (Nature, Vol. 152, No. 3,861, 30/10/43, pp. 485-486.)
656	16812	G.B.	*Industry and Society (II).* (Nature, Vol. 152, No. 3,861, 30/10/43, pp. 486-488.)
657	16816	G.B.	*Industry, Research and Education in Great Britain.* (Nature, Vol. 152, No. 3,864, 20/11/43, pp. 579-581.)
658	16818	G.B.	*New Zealand Department of Scientific Research (17th Annual Report, 1941-1942).* (Nature, Vol. 152, No. 3,864, 20/11/43, pp. 603-604.)
659	16838	G.B.	*Industry and Research. Report of the F.B.I. Industrial Research Com.* (The Federation of British Industries, October, 1943.)
660	16867	U.S.A. ...	*The Engineer as Planner.* (R. E. Flanders, Mechanical Engineering, Vol. 65, No. 11, Nov., 1943, pp. 789-791.)
661	16918	U.S.A. ...	*The Future of Aeronautical Research (Prospects of Tailless Aircraft).* (Inter. Avia., No. 882-883, 31/8/43, p. 13.)
662	17039	G.B.	*British-American Engineering Collaboration.* (H. P. Vowles, Engineers' Digest, Vol. 4, No. 11, November, 1943, pp. 305-306.)
663	17057	Australia ...	*Scientific Research in Australia (Contd.).* (Engineering, Vol. 156, No. 4,063, 26/11/43, pp. 424-425.)
664	17061	G.B.	*University Entrance Scholarships (Report).* (E. (Engineering, Vol. 156, No. 4,063, 26/11/43, p. 433.)

Aircraft Production Methods.

665	15155	G.B.	*The Tharratt Method of Production Illustration.* (O. J. Chayie, Aeronautics, Vol. 9, No. 2, September, 1943, pp. 46-53.)
666	15418	U.S.A. ...	*Thermo-Elastic Forming of Aeroplane Parts (Use of Thermo-Setting Laminates).* (W. I. Beach, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 719-723.)
667	15420	U.S.A. ...	*Modern Methods in Aircraft Welding.* (N. F. Ward, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 732-736.)
668	15601	Germany ...	*Inertia Transmission for Blind Riveting.* (Der Flieger, Vol. 22, No. 4, April, 1943, p. 112.)

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669	15704	G.B.	*Select Committee's Report on Aircraft Production.* (Aeroplane, Vol. 65, No. 1,690, 15/10/43, p. 433.)
670	15718	U.S.A. ...	*Systematic Stock-Keeping of Non-Productive Items (Keeping Inventory of Small Parts, etc.).* (F. M. Reck, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 179-181.)
671	16177	G.B.	*Drop Stamping Sheet Metal Aircraft Parts.* (Machinery, Vol. 63, No. 1,619, 21/10/43, p. 464.)
672	16542	U.S.A. ...	*The Manufacture of Jettison Tanks for Aircraft (High Output Methods Developed by Lockheed).* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, pp. 494-497.)
673	16556	U.S.A. ...	*Machining Parts for Flying Fortresses—Some Boeing Production Methods.* (Machinery, Vol. 63, No. 1,621, 4/11/43, pp. 505-507.)
674	16596	U.S.A. ...	*Design for Production (Production Methods on Small Assemblies).* (J. S. Haldeman, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 40-41.)
675	16606	U.S.A. ...	*Cycle Welding Applied Successfully to Aeroplane Sub-Assemblies (New Bonding Technique).* (Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 33, 94.)
676	16607	U.S.A. ...	*Heat Treating Problems in Aviation.* (M. E. Tatman, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 34, 35, 69.)
677	16635	U.S.A./G.B....	*Aircraft Production Methods in the U.S.A. and Great Britain.* (H. Todter, Luftwissen, Vol. 10, No. 7, July, 1943, pp. 187-197.)
678	16636	Germany ...	*The Weibel Process of Electric Welding in Aircraft Construction (Indirect Resistance Method).* (F. Helbing, Luftwissen, Vol. 10, No. 7, July, 1943, pp. 198-201.)
679	16686	G.B.	*Geodetic Construction. Wellington Bombers in Various Stages of Production (Photos).* (Aircraft Engineering, Vol. 15, No. 177, Nov., 1943, p. 330.)
680	16744	U.S.A. ...	*Engineering Fundamentals of Aircraft Finishing (Protective Coatings, Wood Finishing, etc.).* (A. L. Johnson and J. J. Oudhoff, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 159-175, 249.)
681	16746	U.S.A. ...	*How Consolidated Builds the Coronado.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 182-189, 250.)
682	16748	U.S.A. ...	*Lofting Problems of Streamline Bodies (Part 17).* (C. M. Hartley and R. A. Liming, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 193-197.)
683	16751	U.S.A. ...	*Overseas Shipment of Spares and Maintenance Parts.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 202.)
684	16752	U.S.A. ...	*Three-Dimensional "Visuals" Save Production Time by Simplifying Drawings.* (L. S. Sanders, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 205-207, 267.)

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685	16754	U.S.A.	...	*Rotary Machine Speeds Curving of Propeller Blade Fairings.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 215, 280-282.)
686	16755	U.S.A.	...	*Air Conditioning and Refrigeration in the Aviation Industry.* (L. W. Clifford, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 217-219.)
687	16756	U.S.A.	...	*Use of Dry Ice for Testing (Dry Ice Immersed in Methyl Alcohol for Aircraft Laboratory Test Purposes).* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 222.)
588	16760	U.S.A.	...	*Weighing Data as Applied to Structural Analysis.* (J. C. Reams, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 243-247.)
689	16762	U.S.A.	...	*Many Production Innovations in Ford, Pratt and Whitney Engine Plant.* (F. M. Reck, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 256-260.)
690	16768	U.S.A.	...	*Double Spinner for Use in Small Drill Press Cuts Bearing Production Time.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, p. 351.)
691	16899	G.B.	...	*Shaping Metal Airframe Parts (Drop Hammer, Rubber Die and Stretch Pressing Equipment at a de Havilland Factory).* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 566-571.)
692	16902	G.B.	...	*Application of the Sub-Assembly Principle in the Airspeed Oxford.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 575-578.)
693	16905	G.B.	...	*Pantograph Machining — Drilling and Routing Machine for Continuous Operation.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 587-588.)
694	16907	G.B.	...	*Machines for Die Casting—New Low Temperature High Pressure Equipment.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 599-600.)
695	16916	G.B.	...	*Repairs on Site—Expediting the Return of Aircraft to Service by Organised Working Procedure.* (C. Davis, Aircraft Production, Vol. 5, No. 62, Dec., 1943, pp. 601-603.)
696	16921	G.B.	...	*Aircraft Production in G.B. (Estimated at 3,000 Machines a Month, including More than 400 Bombers).* (Inter. Avia., No. 882-883, 31/8/43, pp. 16-17.)
697	16925	U.S.S.R.	...	*Aircraft Production in the U.S.S.R. (Front Line > 16,500 per Year—German Opinion).* (Inter. Avia., No. 882-883, 31/8/43, p. 22.)
698	16926	U.S.A.	...	*Japanese Aircraft Production > 6,000 per Year—American Opinion).* (Inter. Avia., No. 882-883, 31/8/43, p. 22.)
699	16937	France	...	*Aircraft Production in France Under German Occupation.* (Aeroplane, Vol. 65, No. 1,696, 26/11/43, p. 605.)
700	17086	G.B.	...	*Infra-Red Heating Used in the Manufacture of Mosquito Fuselages (Photo).* (Der Deutsche Sportflieger, Vol. 10, No. 10, October, 1943, p. 166.)

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701	15119	G.B.	...	*Graphic Dimension Translation for Drawings.* (J. E. Hyler, Sheet Metal Industries, Vol. 18, No. 198, October, 1943, p. 1769.)
702	15984	G.B.	...	*Broach Rifling.* (Mechanical World, Vol. 114, No. 2,964, 22/10/43, pp. 478-479.)
703	16057	U.S.A.	...	*Thin Case-Hardening Effected by Ultra High Frequency Oscillators.* (Scientific American, Vol. 169, No. 4, Oct., 1943, p. 183.)
704	16070	G.B.	...	*Ink v. Pencil Tracings.* (G. Stevens, Engineering, Vol. 155, No. 4,059, 29/10/43, p. 355.)
705	16173	G.B.	...	*Screw Thread Tapping Data.* (Machinery, Vol. 63, No. 1,619, 21/10/43, p. 455.)
706	16178	G.B.	...	*The Production of Form-Reliever Milling Cutters.* (H. G. Taylor, Machinery, Vol. 63, No. 1,619, 21/10/43, pp. 466-467.)
707	16272	U.S.A.	...	*Functional Design in War Products.* (G. W. Walker, Service Engineering, Vol. 1, No. 1, Winter, 1943, p. 1.)
708	16325	G.B.	...	*Fabricating Welding Quality Elektron. II—Working.* (W. K. B. Marshall, Metal Industry, Vol. 63, No. 19, 5/11/43, pp. 290-292.)
709	16344	Germany	...	*Saving Material and Labour in the Mass Production of Electric Apparatus.* (Maschinenbau (Betrieb), Vol. 22, No. 1, Jan., 1943, pp. 5-7.) (H. Schlaegel, Engineers' Digest, Vol. 4, No. 10, October, 1943, pp. 284-286.)
710	16478	G.B.	...	*Costs in Moulding Production—the Influence of Batch Quantity.* (W. M. Halliday, Plastics, Vol. 7, No. 78, Nov., 1943, pp. 509-514.)
711	16534	G.B.	...	*Line Production of Cutter Grinders.* (Machinery, Vol. 63, No. 1,620, 28/10/43, pp. 477-480.)
712	16549	G.B.	...	*Shell Forging on Bulldozers—Details of the Pierce and Draw, Single-Stroke and French Extrusion Processes.* (W. Trinks, Mechanical World, Vol. 114, No. 2,965, 29/10/43, pp. 510-513.)
713	16559	G.B.	...	*Refrigeration of Coolant Used in High Speed Grinding.* (Machinery, Vol. 63, No. 1,621, 4/11/43, p. 511.)
714	16562	G.B.	...	*Securing Fine Surface Quality.* (H. J. Wills, Machinery, Vol. 63, No. 1,621, 4/11/43, pp. 513-515.)
715	16592	U.S.A.	...	*Castings Poured on Mechanised Conveyor at Chevrolet Magnesium Foundry.* (J. Geschelin, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 36-38, 90-92.)
716	16602	U.S.A.	...	*Production of Rubber Mountings for Vibration Control.* (J. Geschelin, Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 20-24, 94.)
717	16603	U.S.A.	...	*Forging an 84 lb. Connecting Rod for Diesel Engine.* (Automotive Industries, Vol. 89, No. 7, 1/10/43, pp. 26-27.)

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718	16710	U.S.A.	...	*Photo-Electric Register Control—Industrial Applications.* (J. Markus, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 214-216.)
719	16712	U.S.A.	...	*Electronic Testing of Gunpowder to Ensure Uniformity in Production Runs.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 216.)
720	16713	U.S.A.	...	*New Packaging Methods for Supply Deliveries to War Fronts.* (S. M. Spencer, Scientific American, Vol. 169, No. 5, Nov., 1943, pp. 217-219.)
721	16758	U.S.A.	...	*New Method of Making Metal Drop Hammer Dies (Use of Cerrobend).* (H. G. Groehn, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 229-231.)
722	16834	Germany	...	*Aluminium and Magnesium in the Electrical Industries (Organisation and Structure of the German Aluminium Industry).* (B. J. Brajnikoff, Light Metals, Vol. 6, No. 70, November, 1943, pp. 568-570.)
723	16875	U.S.A.	...	*Forming Operations on 75 mm. Steel Cartridge Shell from Bar to Finished Case.* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 815-817.)
				Plant Equipment and Tools.
724	14947	G.B.	...	*Industrial Degreasing Agents.* (H. P. Quadland, Metal Industry, Vol. 63, No. 14, 1/10/43, p. 220.)
725	15314	U.S.A.	...	*Threaded Inserts for Holding Parts Together.* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 112.)
726	15429	G.B.	...	*Press Tool Setting Equipment.* (Mechanical World, Vol. 114, No. 2,961, 1/10/43, p. 390.)
727	15537	Italy	...	*Away with the Mixer?* (From Materie Plastiche, Vol. 21, 1942, p. 124.) (Plastics, Vol. 7, No. 77, Oct., 1943.)
728	15730	U.S.A.	...	*Some Facts Concerning Band Saws.* (H. J. Chamberland, Aero Digest, Vol. 43, No. 2, August, 1943, pp. 232-234, 305.)
729	15800	U.S.A.	...	*The Rôle of Tool Steel in the War Effort.* (S. C. Spalding, Metal Progress, Vol. 44, No. 3, Sept., 1943, pp. 425-430.)
730	15834	U.S.A.	...	*On Cutting and Hobbing Gears and Worms.* (D. W. Dudley and H. Poritsky, Journal of Applied Mechanics, Vol. 16, No. 3, September, 1943, pp. A-139-A-146.)
731	16131	U.S.A.	...	*Industrial Applications of Adjustable Speed Electronic Motor Drive.* (K. Henney, Scientific American, Vol. 169, No. 4, Oct., 1943, pp. 166-168.)
732	16174	G.B.	...	*A Flexible Machine Loading System.* (G. R. Pryor, Machinery, Vol. 63, No. 1,619, 21/10/43, pp. 457-460.)
733	16269	G.B.	...	*Redesigned Gears Cut Production Costs.* (T. Addison, Machinist, Vol. 87, No. 16, Oct., 1943, p. 96.)

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734	16544	G.B.	*Shaved Gears—Methods of Overcoming Heat Treatment Expansion and Stress-Raising Cutter Marks.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, p. 507.)
735	16545	G.B.	*Improved Drill Guard.* (Mechanical World, Vol. 114, No. 2,965, 29/10/43, p. 507.)
736	16558	G.B.	*The Production of Slab Tools for Form Turning.* (Machinery, Vol. 63, No. 1,621, 4/11/43, pp. 508-510.)
737	16560	G.B.	*Design of Formers for Gear Profile Grinding Machines.* (W. A. Taplin, Machinery, Vol. 63, No. 1,621, 4/11/43, p. 511.)
738	16561	G.B.	*A Gear Design Problem.* (J. Stoney, Machinery, Vol. 63, No. 1,621, 4/11/43, p. 511.)
739	16563	G.B.	*Tungsten Carbide Riveting Punch.* (Machinery, Vol. 63, No. 1,621, 4/11/43, p. 515.)
740	16564	G.B.	*Important Savings in Punch and Die Materials (Use of All-Plastic Punch and a Zinc Base Die).* (Machinery, Vol. 63, No. 1,621, 4/11/43, p. 515.)
741	16565	G.B.	*Improved Wire-Working Machines.* (Machinery, Vol. 63, No. 1,621, 4/11/43, pp. 516-519.)
742	16566	G.B.	*Drill Jig for a Small Bracket.* (Machinery, Vol. 64, No. 1,621, 4/11/43, p. 519.
743	16567	G.B.	*Tools for a Pressed Steel Collar.* (Machinery, Vol. 63, No. 1,621, 4/11/43, pp. 520-523.)
744	16568	G.B.	*Drill Jig for a Special Stop Bracket.* (Machinery, Vol. 63, No. 1,621, 4/11/43, p. 523.)
745	16594	U.S.A. ...	*A New Blind Rivet (Preco).* (Automotive Industries, Vol. 89, No. 7, 1/10/43, p. 39.)
746	16634	G.B.	*British Standard Test Sieves.* (Metal Industry, Vol. 63, No. 21, 19/11/43, p. 330.)
747	16738	U.S.A. ...	*Tool and Operations Planning (Excerpts from Paper).* (W. Brainard, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 27-28.)
748	16750	U.S.A. ...	*Hand Stoning Conserves Cutting Tools.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 201, 267.)
749	16769	U.S.A. ...	*New Device Facilitates Insertion of Rivets.* (Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 353-354.)
750	16904	G.B.	*Light Portable Gun for Firing Explosive Rivets.* (Aircraft Production, Vol. 5, No. 62, Dec., 1943, p. 584.)
751	17006	U.S.A. ...	*Developing the Tools for Accelerating U.S. Aircraft Output.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 119-121, 325-331.)
			Salvage.
752	15417	U.S.A. ...	*Salvaging Aircraft Structures in Process of Manufacture.* (R. L. Schleicher, Mechanical Engineering, Vol. 65, No. 10, October, 1943, pp. 711-718.)
			Workers' Welfare.
753	16528	G.B.	*Electrical Accidents.* (Electrical Times, Vol. 104, No. 2,713, 21/10/43, pp. 492-493.)

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754	16576	G.B.	... ...	*Factory Accidents (Annual Report of the Chief Inspector of Factories, 1942).* (Engineering, Vol. 156, No. 4,061, 12/11/43, p. 392.)
755	16625	G.B.	... ...	*Utilisation of Waste Heat from Industrial Operations.* (W. H. Dickinson, Engineer, Vol. 176, No. 4,584, 19/11/43, pp. 410-412.)
756	16630	G.B.	... ...	*Exothermic Heating Pads (Their Possible Application in Industry in Providing a Controlled Temperature—Time Cycle, Heating of Airman's Clothing, etc.).* (Metal Industry, Vol. 63, No. 21, 19/11/43, pp. 329-330.)
757	16693	G.B.	... ...	*Lighting in Public Buildings.* (Electrician, Vol. 131, No. 3,415, 12/11/43, p. 487.)
758	16701	U.S.A.	...	*Factory Illumination—New Servicing Equipment.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 201.)
759	16950	G.B.	... ...	*Utilisation of Waste Heat from Industrial Operations (Contd.).* (H. W. Dickinson, Engineer, Vol. 176, No. 4,585, 26/11/43, pp. 432-434.)

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(MILITARY VEHICLES, TANKS, MOTOR CYCLES).

760	15307	U.S.A.	...	*The Alaska Highway.* (K. H. Siddall, Flying and Industrial Aviation, Vol. 35, No. 3, September, 1943, pp. 54-56, 94-99.)
761	16274	U.S.A.	...	*Service Tools for Field Replacement of American Transport Equipment.* (Service Engineering, Vol. 1, No. 1, Winter, 1943, pp. 6-11.)
762	16523	G.B.	... ...	*Mobile Traffic Signal.* (Electrical Review, Vol. 133, No. 3,436, 1/10/43, pp. 447-448.)
763	16553	U.S.A.	...	*Wright Powered M-3, M-4 and M-7 Tanks.* (Trade Winds, Vol. 7, No. 1, August, 1943, pp. 3-6, 16.)
764	16654	U.S.A.	...	*Factors Involved in the Selection of Railroad Motive Power.* (R. T. Sawyer, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-3.)
765	16727	U.S.A.	...	*War Transportation (Review of Papers given at the S.A.E. West Coast Transportation and Maintenance Meeting).* (S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 17-19, 25.)
766	16728	U.S.A.	...	*Lubricants for Ordnance, Combat and Motor Transport Vehicles (including Appendices I and II on Specifications).* (R. E. Jeffrey, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 345-349, 368.)
767	16733	U.S.A.	...	*Dust Problems in Military Vehicle Operation.* (L. F. Overholt, S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 381-384.)
768	16739	U.S.A.	...	*Standardized Techniques of Automotive Maintenance (Reports of S.A.E. Vehicle Maintenance Committees).* (S.A.E. Journal, Vol. 51, No. 10, October, 1943, pp. 31-39, 44-45.)

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769	16783	G.B.	*A New Era in Transport (Presidential Address to the Institute of Transport).* (Sir W. V. Wood, Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 416-417.)
770	16860	G.B.	*Miniature Motor Cycles for Airborne Troops.* (Flight, Vol. 44, No. 1,821, 18/11/43, p. 551.)
771	16953	G.B.	*Folding Motor Cycle Dropped by Parachute.* (Aeroplane, Vol. 65, 19/11/43, p. 574.)
772	17047	G.B.	*Rubberless Tyres. An Australian Invention.* (Engineers' Digest, Vol. 4, No. 11, November, 1943, p. 316.)

WIRELESS AND ELECTRICITY.

Radio Reception, Aerials, etc.

773	15347	G.B.	*Radio Detection and Ranging (Radar).* (Nature, Vol. 152, No. 3,857, 2/10/43, pp. 391-392.)
774	15405	G.B.	*Aerial Characteristics—II (Data Sheet).* (Electronic Engineering, Vol. 16, No. 188, October, 1943, p. 197.)
775	15783	G.B.	*Radio and International Relations.* (Sir Stafford Cripps, Engineer, Vol. 176, No. 4,580, 22/10/43, p. 317.)
776	16513	G.B.	*Aerial Characteristics—III. Effect of Ground Losses on Polar Characteristics (Data Sheets).* (Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 241-245.)
777	16775	U.S.A. ...	*Some Aspects of Radio Reception at Ultra-High Frequency. Part I—The Antenna and the Receiver Input Circuits.* (E. W. Herold and L. Malter, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 423-438.)

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778	15691	G.B.	*Telecommunication.* (Sir A. S. Angwin, Engineer, Vol. 176, No. 4,579, 15/10/43, pp. 310-311.)
779	15701	G.B.	*International Telecommunications.* (Sir A. Stanley Angwin, Engineering, Vol. 156, No. 4,057, 15/10/43, pp. 316-317.)

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780	16113	G.B.	*Overhead Line Vertical Loads (Mechanical).* (P. J. Ryle, Electrician, Vol. 131, No. 3,411, 15/10/43, pp. 376-378.)
781	16216	U.S.A. ...	*Mobile Transformer Station for Agricultural Machines and Building Sites.* (G. Nabholz, Engineers' Digest, Vol. 4, No. 8, August, 1943, pp. 225-226.)
782	16241	G.B.	*The High Pressure Gas-Filled Cable (Abstract).* (C. J. Beaver and E. L. Davey, Journal of Inst. of Electrical Engineers, Vol. 90, No. 34, Part I, Oct., 1943, pp. 452-455.)

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783	16243	G.B.	... ...	*The Ventilation of Sub-Stations.* (F. Favell and E. W. Connon, Journal of Inst. of Electrical Engineers, Vol. 90, No. 17, Part II, Oct., 1943, pp. 327-346.)
784	16376	G.B.	... ...	*The Design of Vibration Pick-Up Units.* (F. Postlethwaite, Engineering, Vol. 156, No. 4,060, 5/11/43, pp. 362-364.)
785	16517	G.B.	... ...	*Defects in Direct Disk Recording (Table).* (D. W. Aldous, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 233-235.)
786	16524	G.B.	... ...	*The Need for Oil Conservators on Transformers.* (R. M. Charley, Electrical Times, Vol. 104, No. 2,711, 7/10/43, pp. 416-417.)
787	16525	G.B.	... ...	*Insulation Testing Laboratory.* (Electrical Times, Vol. 104, No. 2,711, 7/10/43, pp. 422-424.)
788	16526	G.B.	... ...	*Electrical Installations — Present and Future.* (Electrical Times, Vol. 104, No. 2,713, 21/10/43, pp. 479-481.)
789	16551	G.B.	... ...	*Process Electric Control.* (H. Seymour, Electrician, Vol. 131, No. 3,412, 29/10/43, pp. 423-424.)
790	16644	U.S.A.	...	*Maintenance of Hydro-Electric Generating Units.* (G. H. Bragg, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-5.)
791	16687	G.B.	... ...	*Electricity Applied to Disinfection.* (D. W. G. Jones, Electrician, Vol. 131, No. 3,415, 12/11/43, pp. 474-475.)
792	16688	G.B.	... ...	*Hollow Tube Transmission—Examination of Wave Guides in Electrical Communication.* (Electrician, Vol. 131, No. 3,415, 11/12/43, p. 476.)
793	16692	G.B.	... ...	*Post-War Electrical Appliances.* (G. A. T. Burdett, Electrician, Vol. 131, No. 3,415, 12/11/43, pp. 481-482.)
794	16771	U.S.A.	...	*Electric Communications, the Past and Present Illuminate the Future.* (L. Espenschied, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 395-402.)
795	16774	U.S.A.	...	*Use of Sub-Carrier Frequency Modulation in Communication Systems.* (W. H. Bliss, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 419-423.)
796	16776	U.S.A.	...	*Tubes Employing Velocity Modulation.* (R. I. Sarbacher and W. A. Edson, Procs. of the I.R.E., Vol. 31, No. 8, August, 1943, pp. 439-452.)
797	16782	G.B.	... ...	*The Accuracy of Numerical Harmonic Analysis.* (R. G. Manley, Engineering, Vol. 156, No. 4,062, 19/11/43, pp. 414-415.)
798	16836	G.B.	... ...	*The Production of Hydrogen and Oxygen by the Electrolysis of Water.* (C. E. Bowen, Journal of Inst. of Electrical Engineers, Vol. 90, No. 35, Pt. I, November, 1943, pp. 474-485.)

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799	16837	G.B.	...	*A Gas-Filled Cable System.* (B. Calvert, Journal of Inst. of Electrical Engineers, Vol. 90, No. 35, Pt. I, November, 1943, pp. 485-486.)
				Electronics.
800	15232	G.B.	...	*High Crystal Harmonics for Oscillator Control.* (Nature, Vol. 152, No. 3,856, 25/9/43, pp. 363-364.)
801	15403	G.B.	...	*Dust Cored Coils. Part III—Variation of Q with Frequency.* (V. G. Welsby, Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 191-194.)
802	15404	G.B.	...	*Some Unusual Applications of the Cathode Ray Oscillograph (Calibration of Time Base Scale, Operation of Relay, Reverberation Characteristics of a Room, etc.).* (G. N. Patchett, Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 195-196.)
803	15407	G.B.	...	*High Frequency Therapy—Part II.* (W. D. Oliphant, Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 206-208.)
804	16509	G.B.	...	*The Design of a Cathode Ray Tube Amplifier.* (B. H. Hadfield, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 226-229.)
805	16511	G.B.	...	*Dust Cored Coils. Part IV—Equi-Q Charts.* (V. G. Welsby, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 230-232.)
806	16512	G.B.	...	*An Improved Low Frequency Analyser (for Electro-Encephalographic Research, etc.).* (W. G. Walter, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 236-240.)
807	16515	G.B.	...	*Emission Type Photo-Electric Cells.* (A. C. Lynch, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, p. 250.)
808	16516	G.B.	...	*High Frequency Therapy. Part III—Electrode Theory and Design.* (W. D. Oliphant, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 252-255.)
809	16521	G.B.	...	*Electrons—Future Possibilities.* (Electrical Review, Vol. 133, No. 3,436, 1/10/43, p. 425.)
810	16552	G.B.	...	*Post-War Prospects in Electronics and Synthetics.* (Electrician, Vol. 131, No. 3,412, 29/10/43, pp. 425-426.)
811	16663	U.S.A.	...	*A Sensitive Cathode Ray Volt Meter.* (Z. V. Harvalik, Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, pp. 263-265.)
812	16689	G.B.	...	*Industrial Radiography—Some Interesting Examples of the Application of X-Rays.* (Electrician, Vol. 131, No. 3,415, 12/11/43, pp. 477-478.)
813	16711	U.S.A.	...	*Marine Gears Controlled During Balancing by Electronic Means.* (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 216.)
814	16753	U.S.A.	...	*Maintenance of Electronic Control Devices.* (W. D. Cockrell, Aero Digest, Vol. 43, No. 6, Sept., 1943, pp. 211-213, 282-283.)

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815	16879	U.S.A.	... *Industrial Electronics (Review of Papers Given at Conference on Industrial Electronics).* (Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 819-823.)

HEAT, LIGHT AND SOUND.

Heat Transfer, Absorption, etc.

816	15752	G.B. ...	... *The Testing of Aircraft Thermometers.* (R. B. Brock, Aircraft Engineering, Vol. 15, No. 176, Oct., 1943, pp. 303-304.)
817	16331	G.B. ...	... *Radiation Temperatures and the Welsbach Mantle.* (W. T. David, Nature, Vol. 152, No. 3,860, 23/10/43, p. 477.)
818	16520	G.B. ...	... *Wartime Specifications for I.P. Thermometers (Special Supplement).* (Journal of the Inst. of Petroleum, Vol. 29, No. 237, Sept., 1943, pp. 1-11.)
819	16648	U.S.A.	... *Theoretical Regenerative-Steam-Cycle Heat Rates.* (A. M. Selvey and P. H. Knowlton, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-12.)
820	16667	U.S.A.	... *Simple Temperature Indicators (Tempil Pellets).* (Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, p. 280.)
821	16813	G.B. ...	... *Area Heating.* (Nature, Vol. 152, No. 3,861, 30/10/43, pp. 497-499.)
822	16814	G.B. ...	... *District Heating in New York.* (Nature, Vol. 152, No. 3,861, 30/10/43, p. 500.)
823	16862	U.S.A.	... *Steam Generation for Marine and Stationary Service in the United States, 1933-1943.* (E. G. Bailey, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 770-772.)
824	16864	U.S.A.	... *Aircraft Heating Systems—A Critical Comparison of Three Types of Heaters.* (W. W. Reaser, Mechanical Engineering, Vol. 65, No. 11, November, 1943, pp. 775-780.)
825	17072	U.S.A.	... *Distribution of Heat Absorption and Factors Affecting Performance of Twin Branch 2,500 Psi Boiler.* (F. G. Ely and L. B. Schueler, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-8.)
826	17073	U.S.A.	... *Heat Transfer to Water-Cooled Furnace Walls.* (H. Kreisinger and R. C. Patterson, A.S.M.E. Preprints, Nov. 29-Dec. 3, 1943, pp. 1-7.)

Fluorescent Lamps, After-Glow, etc.

827	15349	G.B. ...	... *Initiation of Glow Discharges.* (J. D. Craggs and J. M. Meek, Nature, Vol. 152, No. 3,857, 2/10/43, pp. 386-387.)
828	15406	G.B. ...	... *Fluorescent Lamps. Survey of Old and Recent Developments—Part II.* (R. Neumann, Electronic Engineering, Vol. 16, No. 188, October, 1943, pp. 202-205.)
829	15641	Switzerland ...	*Raman Spectroscopy Applied to Science and Engineering.* (W. Bedert, Schweizer Archiv., Vol. 8, No. 3, March, 1942, pp. 90-95.)

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830	15760	G.B.	*Lighting and Safety.* (Metal Industry, Vol. 63, No. 16, 15/10/43, p. 249.)
831	16514	G.B.	*Fluorescent Lamps. A Survey of Old and Recent Developments—Part III.* (R. Neumann, Electronic Engineering, Vol. 16, No. 189, Nov., 1943, pp. 247-250.)
832	16522	G.B.	*Public Lighting.* (Electrical Review, Vol. 133, No. 3,436, 1/10/43, pp. 431-432.)
833	16666	U.S.A. ...	*High Speed Flashlight.* (Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, p. 278.)
834	16770	G.B.	*The Visual Spectrophotometry of Glasses, with Special Reference to Low Absorptive Glasses.* (T. H. Wang, Philosophical Magazine, Vol. 34, No. 237, October, 1943, pp. 684-699.)
835	16800	G.B.	*Afterglow in High Pressure Gaseous Discharges.* (Nature, Vol. 152, No. 3,862, 6/11/43, pp. 538-539.)
836	17060	G.B.	*Emergency Lighting Equipments.* (Engineering, Vol. 156, No. 4,063, 26/11/43, p. 432.)

Sound Measurement and Supersonics.

837	16492	G.B.	*Supersonic Waves to Detect Defects in Motor Tyres.* (Engineer, Vol. 176, No. 4,583, 12/11/43, p. 394.)
838	16986	G.B.	*A Simple Method of Measuring the Wave-Length of Sound in Free Air.* (E. G. Knowles, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, p. 165.)

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839	16664	U.S.A. ...	*An Inexpensive Stroboscope for High Speed Photography.* (S. Silverman and W. H. Warhus, Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, pp. 273-275.)
840	16665	U.S.A. ...	*A Camera for Stereoscopic Microradiography.* (G. L. Clark and R. W. Eyler, Review of Scientific Instruments, Vol. 14, No. 9, Sept., 1943, pp. 277-278.)
841	16717	U.S.A. ...	*High Speed Camera* (8,000 *Frames a Second*). (Scientific American, Vol. 169, No. 5, Nov., 1943, p. 222.)
842	16829	G.B.	*Diagrams on Metal Surfaces by Photography* (*Kodak Process*). (Light Metals, Vol. 6, No. 70, November, 1943, p. 559.)
843	16886	G.B.	*Photographic Layout Methods.* (A. H. Tiltman, Metal Industry, Vol. 63, No. 22, 26/11/43, p. 342.)
844	16963	G.B.	*Photographic Layout Methods.* (Aeroplane, Vol. 65, No —, 19/11/43, p. 591.)
845	17021	U.S.A. ...	*Photo Reconnaissance.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 191, 340-342.)

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METEOROLOGY
(ICE FORMATION, VAPOUR TRAILS).

846	16083	U.S.A. ...	*Device for Study of Ice Formations.* (American Aviation, Vol. 7, No. 8, 15/9/43, p. 26.)
847	17030	Germany ...	*Vapour Trails.* (Der Flieger, Vol. 22, No. 10, Oct., 1943, pp. 286-287.)

PHYSIOLOGY AND AVIATION MEDICINE.

848	15234	G.B.	*Drinking Water from Sea Water.* (Petroleum Times, Vol. 47, No. 1,204, 18/9/43, pp. 494-496.)
849	15402	G.B.	*An Electronic Stimulator for Use in General Physiology.* (R. H. Thorp and D. Robinson, Electronic Engineering, Vol. 16, No. 188, Oct., 1943, pp. 188-190.)
850	15992	U.S.A. ...	*A New Method of Making Sea Water Drinkable.* (J. Amer. Med. Ass., Vol. 122, No. 8, 18/6/43, p. 515.) (Bulletin of War Medicine, Vol. 4, No. 2, 1943, p. 108.)
851	16819	G.B.	*Researches on Penicillin.* (Nature, Vol. 152, No. 3,864, 20/11/43, pp. 604-605.)
852	16821	Russia ...	*Physiological Basis of Camouflage (Russian Publication).* (Nature, Vol. 152, No. 3,864, 20/11/43, pp. 605-606.)
853	17015	U.S.A. ...	*Aviation Medicine.* (Flying, including Industrial Aviation, Vol. 33, No. 4, Oct., 1943, pp. 160-161, 213-218.)

MATHEMATICS AND PHYSICS.

854	15335	G.B.	*On the Dimensions of Physical Magnitudes. (Third Paper: Electric and Magnetic Magnitudes.)* (H. Dingle, Philosophical Magazine, Vol. 34, No. 236, Sept., 1943, pp. 588-599.)
855	16172	G.B.	*Length of Chord Common to Two Circles.* (Machinery, Vol. 63, No. 1,619, 21/10/43, p. 454.)
856	16314	G.B.	*Determination of Friction Moment of Gyroscopes.* (Z.V.D.I., Vol. 86, No. 35-36, Sept., 1942, pp. 552-553.) (F. Gottwald, Engineers' Digest, Vol. 4, No. 9, Sept., 1943, pp. 262-263.)
857	16589	Germany ...	*A Simple Deduction of the Crocco Vortex Theorem from the Law of Conservation of Energy.* (K. Oswatitsch, L.F.F., Vol. 20, No. 819, 16/10/43, p. 260.)
858	16807	G.B.	*Significance and Development of Hamilton's Quaternions.* (H. T. Piaggio, Nature, Vol. 152, No. 3,863, 13/11/43, pp. 553-555.)
859	16817	G.B.	*The New Algebras and Their Significance for Physics and Philosophy.* (E. T. Whittaker, Nature, Vol. 152, No. 3,864, 20/11/43, p. 603.)
860	16981	G.B.	*Notes on Some Recent Developments in Hygrometry.* (J. H. Awbery, Journal of Scientific Instruments, Vol. 20, No. 10, October, 1943, pp. 153-154.)

April, 1944

Abstracts from the Scientific and Technical Press

(No. 121. March, 1944)

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ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

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(Prepared by R.T.P.3.)

No. 121. MARCH, 1944.

Notices and abstracts from the Scientific and Technical Press are prepared primarily for the information of Scientific and Technical Staffs. Particular attention is paid to the work carried out in foreign countries, on the assumption that the more accessible British work (for example that published by the Aeronautical Research Committee) is already known to these Staffs.

Requests from scientific and technical staffs for further information of translations should be addressed to R.T.P.3, Ministry of Aircraft Production, and not to the Royal Aeronautical Society.

Only a limited number of the articles quoted from foreign journals are translated and usually only the *original* can be supplied on loan. If, however, translation is required, application should be made in writing to R.T.P.3, the requests being considered in accordance with existing facilities.

NOTE.—As far as possible, the country of origin quoted in the items refers to the original source.

American Bomb Types. (Inter. Avia., Nos. 898-899, Dec. 11th, 1943, pp. 21-22.) (121/1 U.S.A.)

Depending upon the use to which they are put, the following American bomb designs are in use:—

(1) DEMOLITION BOMBS.

(*a*) *General Purpose Bombs* (G.P.), which contain from 50 to 55 per cent. explosive; their cases are made from seamless extruded steel tubes, on to which are welded reinforced nose caps; they are used in five sizes, namely, 100 lb. bombs for the demolition of one or two-storey buildings and other unarmoured targets; 250 lb. bombs for use against larger buildings and unarmoured ships; 500 lb. bombs for use against railway installations, bridges, etc., and against lightly armoured ships; 1,000 lb. bombs for the destruction of large bridges and part installations; 2,000 lb. bombs for the bursting of dams and the destruction of battle cruisers and battle ships.

(*b*) *Semi-Armour Piercing Bombs* (S.A.P.), which contain about 32 per cent. explosive and are available in weights of 500 lb. and 1,000 lb. for cases in which the penetration of the G.P. bombs is not sufficient.

(*c*) *Armour Piercing Bombs* (A.P.), which contain only from five to twelve per cent. explosive and are used in six sizes from 600 lb. to 1,600 lb.; these bombs, developed from coastal mortar shells, are used comparatively rarely as they are effective only when direct hits are scored.

(*d*) *Light Case Bombs* (L.C.), with 77 to 80 per cent. explosive, which produce their effect mainly by blast and are used chiefly for the destruction of blocks of buildings; the biggest bomb of this type, frequently termed "block buster," has a weight of 4,200 lb. and carries an explosive charge of 3,362 lb. It is pointed out that the effect of the largest sizes of light case bombs is frequently overestimated, as for example, two 2,000 lb. bombs cause more damage than one of 4,000 lb. Details of the sizes of smaller light case bombs are not available.

(*e*) *Depth Bombs* (D.B.), with an explosive filled amounting to 70 to 75 per cent. of the weight; they have a very thin case and are detonated by hydrostatic fuse provoking the explosion depending upon the pressure exerted on it by the surrounding water; the effect of the bombs takes the form of under-water shock waves; this type of projectile is used to combat submarine and is available in sizes of 325 lb. and 650 lb.

(2) Fragmentation Bombs.

These are used in weights of 20 to 30 lb.; they consist of a steel cylinder which encloses the explosive filled and around which is wound an iron bar of rectangular cross section; upon the explosion the latter breaks up into 1,000-1,500 splinters weighing about one-third of an ounce each. For release from medium altitudes impact fuses are employed whereas in low flying attacks delayed action fuses or parachutes are used to prevent the attacking aircraft from being hit by splinters. It is reported that in certain cases single or clustered fragmentation bombs with time fuses are used against closed formations of enemy aircraft.

(3) Chemical Bombs.

These are mostly bombs weighing 100 lb., with a light steel case filled with various chemicals, depending upon the use to which they are put; for example, they can be filled with incendiary liquids, chemicals producing smoke-screens, or with harrassing or casualty agents. Besides these the U.S. Army Air Forces use *incendiary sticks* weighing about 4 lb. and consisting of a magnesium case filled with thermit.

(4) Practice Bombs.

These weigh 100 lb. and are usually filled with sand.

(5) Drill and Gauge Bombs.

These are used in various sizes for training purposes and for ballistic experiments.

That the American and the British Air Forces do not employ the same designs of bomb is discernible superficially by the fact that the American bombs are fitted with box-type fins, whereas the British show cylindrical vanes; it is claimed that the American design produces a considerably smaller spread because the bombs are prevented from rotating about their axis. Without attempting to describe the designs of the American instantaneous, time and hydrostatic fuses, it may be recorded that the instantaneous fuses are sometimes fitted with "feelers" measuring from six to twenty-four inches length, resembling the "Dinort" sticks used in Germany.

New De-Icing Developments. (Inter. Avia., Nos. 898-899, December 11th, 1943, p. 20.) (121/2 U.S.A.)

While hitherto the accretion of ice on airscrews was prevented by means of an anti-icing liquid which was spread over the leading edges of the airscrew blades by means of a slinger ring, the United States Rubber Co. has now developed a new method in collaboration with the Army Air Forces. Almost the entire

leading edge of the airscrew blade is covered with a newly developed type of synthetic rubber " Uskon," which as a result of the admixture of chemical substances is electrically conductive.

As the tests carried out by the Army Air Forces by electrically heating the airscrews have produced satisfactory results, the possibilities of applying this system also in other fields of anti-icing protection are now being studied with considerable intensity. As regards hot air de-icing, in the P.B.Y. " Catalina " twin-engined and the P.B.2Y. " Coronado " four-engined flying-boats, only the wing leading edges are heated with air which in turn is heated by the exhaust gases. An additional heating installation operating on aviation petrol is installed in the tail of the hull for the heating of the leading edges of the control surfaces. The B-24 " Liberator " four-engined bomber and the new P4Y-1 twin-engined naval flying-boat, both of which will be fitted with consolidated Vultee anti-icing systems, will not have this supplementary heating installation and their tail units will be heated by means of hot air supplied from the power plant.

A.B.A. Pressure Priming System for Starting Aircraft. (Inter. Avia., Nos. 898-899, Dec. 11th, 1943, pp. 23-24.) (121/3 Sweden.)

The A.B.A. starting method makes use of a special container holding the priming fuel (either normal aviation petrol or especially volatile fuel) under constant nitrogen pressure, whence it is discharged into the intake manifold of the engine by means of an instantly acting remote-controlled valve equipped with an effective atomiser. The following versions have been tested:—(*a*) The container can be removed with the aid of an automatic cut-off valve closing the passage between the container and the permanently mounted pressure line to the priming valve; outside of the aircraft it is filled with a starting fuel and pressure nitrogen by means of suitable equipment. (*b*) The container is permanently installed and is charged through a petrol pipe ending in a quick-coupling. (*c*) The permanent equipment of the aeroplane merely consists of the priming nozzle and the pipe ending in a quick-coupling for connection to a service cart; in this case such a cart equipped with a storage container must be available on each aerodrome. In the first two cases the weight of the entire installation amounts to 5.1 lb. for each engine, whereas in the third case the weight is only 1.3 lb. The priming nozzle is controlled electrically by means of a solenoid and acts instantaneously because the pipe leading from the container to the nozzle is constantly filled with fuel. The fuel metered out by the nozzle is sufficient for normal idling, so that the engine turns on the priming fuel until it is warmed up sufficiently and obtains its normal mixture supply from the carburettor. The starting method described has been tested by A.B. Aerotransport with good results over a period of two years, and the engines were normally found to fire within three seconds, whereas normal carburettor operation began within from five to sixty seconds, the latter at lowest temperatures.

American Statistics of Civil Aircraft Accidents Due to Engine Failure (Engines of 90 h.p. or Less). (Inter. Avia., Nos. 898-899, December 11th, 1943, p. 20.) (121/4 U.S.A.)

The Safety Bureau of the U.S. Civil Aeronautics Board recently published statistics covering aircraft accidents resulting from engine failure in the period from 1939 to 1942. Although the report analyses only trouble experienced with engines of 90 h.p. or less, interesting comparisons can nevertheless be made of the frequency of the various types of engine trouble. Roughly 55 per cent. of all accidents caused by engine trouble were traceable to failure of the fuel system, of which, however, over one-third were chargeable to personnel error, including carburettor icing, fuel exhaustion caused by the pilot's lack of attention to his fuel supply, the use of wrong grade fuel, etc. One-sixth of the remaining accidents were due to each of the following causes:—

(*a*) Dirt or water in the fuel system;
(*b*) Improper idling and throttle adjustment;
(*c*) Carburettor icing under conditions where the pilot was not at fault;
(*d*) Fuel line leaks, vapour locks, broken throttle brackets, etc.

Some 23 per cent. of accidents resulted from undetermined causes; in the main it is assumed that these failures were of a nature which could not be determined after the crash owing to the engine being too badly damaged. The third group of about 10 per cent. consists of accidents produced by power plant structural failure, such as, in the order of their frequency:—Valves and valve springs, airscrews, cylinders, crankshafts, and pistons. In the fourth place, with about seven per cent., was ignition malfunctioning, more than half of which occurred as a result of faulty magnetos or sparking plugs. The remaining five per cent. of the cases investigated were due to lubrication system failures or miscellaneous causes.

Non-Destructive Testing of Non-Ferrous Semi-Finished Metal Products by New Magnetic Induction Methods. (W. Schirp, E.T.Z., Vol. 64, Nos. 31-32, 12/8/43, pp. 413-414.) (121/5 Germany.)

The magnetic induction method for the inspection of non-ferrous metals depends on the fact that the apparent resistance of a coil fed with high frequency alternating current and surrounding the specimen varies with the dimensions and electrical conductivity of the latter. The method is primarily suited for tubes, rods or profiles of nominally constant cross-section which can be passed through the coil. Flow rates as high as 1 m./sec. can be maintained through the apparatus, which normally is provided with two test coils forming the opposite arms of a Wheatstone bridge. An e.m.f. of sonic frequency is applied and the out of balance current after amplification can be observed on a cathode ray oscillograph and will operate an electronic relay as soon as certain limiting values are exceeded.

When testing for consistency of dimensions or constitution (hardness or heat treatment, type of alloy, etc.) the specimen under investigation passes through one of the coils whilst the other surrounds a stationary reference sample. Dimensional errors are separated from those due to heat treatment, etc., by changes in phase displacement of the cathode ray record. The sensitivity of the inspection is not sufficient to record cracks or other internal faults (inclusions).

Such faults are detected by passing the specimen through both coils in succession, the coils being placed in close proximity to each other. Under these conditions, changes in dimension or constitution of sample (unless they are abnormal) will affect both coils equally, each crack or fault, on the other hand, giving rise to two discontinuities in the record (a crack smaller than the longitudinal dimension of the coils is recorded twice as it passes through the two coils, whilst for longer cracks, the beginning and end of the fault is recorded). It is obvious that by duplicating the circuits and recorders and employing three search coils spanning the specimen whilst a fourth surrounds the standard, the fault testing can be carried out simultaneously with inspection for dimensions and heat treatment.

In most cases of semi-finished products, the latter inspection need not be carried out over the whole length of the specimen. Thus, in the apparatus developed by Heinkel for dural tubes, the checking for dimensions and heat treatment against a standard is carried out over the first 20 cm., whilst the testing for flaws is carried out over the remaining length. Only one set of electronic recorders is thus required, the coils only being switched in or out as required.

The test process is completely automatic and does not depend on visual observation, special electronic relays being provided which automatically mark faulty sections of the tubes as they pass through the apparatus. Further relays

ensure that only specimens fulfilling the specification are passed on to the works, the rejects being further sorted, depending on whether the material or dimensions are at fault.

A great advantage of the apparatus is the high speed of operation (over 1 m./sec.) and the absence of skilled attention. It is stated that prior to its installation, numerous cases arose where faults either escaped detection or were only noticed after an appreciable amount of fabrication had been carried out on the product.

Surface Structure Markings on Al.-Mn. and Al.-Mg.-Si. Sheet Metal After Anodic Treatment. (H. Rohrig and E. Kopernick, Z. f. Metallkunde, Vol. 35, No. 5, May, 1943, pp. 117-120.) (121/6 Germany.)

During the anodic treatment (d.c. sulphuric acid electrolytes) of Al.-Mn. alloy sheet, dark cloudy markings are occasionally produced, especially if the material is semi-hard. Surface markings are also found, although more rarely, when anodising Al.-Mg.-Si. sheet. In this case, however, the marking is not dark, but speckled. The chemical composition of sheets exhibiting this abnormality does not differ in any way from that of other sheets yielding the normal white oxide film on treatment. It appears that the discolouration of Al-Mn. sheet is due to the supersaturation of the mixed crystals with Mn. at their boundaries. This may lead to an uneven distribution of Mn. already in the casting, if the latter is annealed incorrectly.

The segregate once formed will persist in the rolled sheet and on subsequent anodising produces a dark cloudy deposit of manganese oxide. The cure of the trouble therefore lies in a close temperature control of the cast alloy prior to rolling. The casting should be carried out quickly and the annealing temperature prior to rolling should not exceed 450°C. for 4 hours, at an actual rolling temperature of 350°C. Slow cooling of the casting (of the order of 30 minutes) and lengthy annealing periods (of the order of 24 hours) favour the breaking up of the mixed crystal and the formation of unevenly dispersed segregates may lead to troubles during subsequent anodising.

In the case of Al.-Mg.-Si. alloys, the Mg_2Si segregate is already formed during the cooling of the casting. On account of the higher mobility of the Mg. and Si. atoms compared with those of Mn., however, marked difference in concentration of segregate producing an uneven oxide film on subsequent anodisation occur only relatively rarely. Suitable heat treatment of the original casting again obviates the trouble.

The Effect of Annealing Temperature and Period on the Softening of Previously Cold Worked Metal (Crystal Recuperation and Recrystallisation Phenomena). (A. Pomp and G. Niebch, Z. f. Metallkunde, Vol. 35, No. 5, May, 1943, pp. 111-117.) (121/7 Germany.)

The experiments were carried out on Krupp soft steel of the following per cent. composition:—

C.	Si.	Mn.	P.	S.	Fe.
.08	.05	.06	.005	.01	rest

The material was available in the form of round bars of 26 mm. diameter which were cut into 40 cm. lengths and annealed at 900°C. for 30 minutes. The bars were subsequently cooled in Kieselguhr (infusorial earth) and ground down to 18 mm. diameter.

The specimens so obtained were next stretched in a 35-ton tensile machine so as to exhibit permanent reduction in cross-section of 5, 7.5, 10, 12.5, 15 and 20 per cent. respectively. The bars were then cut into cylindrical blocks, each 10 mm. high and annealed at a series of constant temperature ranging from 620°C. to 900°C., the annealing time varying from 10 minutes to 8 hours.

Subsequent cooling took place either in still air or at a very much slower rate in the oven (1°C./min.), The blocks were then finally split longitudinally and the Brinell hardness determined at two points for each of the two new internal surfaces thus formed.

These surfaces were then polished and etched for micro graphical examination of the structure.

Immediately after cold working and before the subsequent annealing, the material gave the following hardness values:—

Per cent. diminution in area.	Brinell Hardness 2.5/62.5/30 Kg./mm.²
0	93
5	121
7·5	129
10	136
12.5	142
15	149
20	160

With annealing, some or all of this strain hardening disappears.

The experimental results are given in graphical form, the Brinell hardness being plotted against annealing period for each temperature, with degree of original cold working (per cent. reduction in area) as parameter.

Broadly speaking, the curves fall into two classes, depending on whether the original cold working amounted to less or more than 10 per cent. reduction in cross-section.

(1) In the former case, after an initial rapid softening of the material, a steady state is reached in about 30 minutes and extending the annealing period to 8 hours causes no further reduction in hardness. The final value, moreover, is still appreciably above that of the original material prior to cold working. (Brinell 115 against 93.)

(2) If, on the other hand, the material has been stretched to give a reduction in area between 10 and 20 per cent., the softening during annealing is progressive over much longer period (of the order of 4 hours) and the final hardness figure is practically identical with that of the original material prior to cold working.

It appears that in the case of moderate strain hardening the subsequent softening on annealing is mainly due to crystal recuperation and metallographical examination shows no change in structure of the material.

With high degrees of original strain hardening, however, marked recrystallisation of the material takes place on annealing.

Phosphatising in the Cold. (Z.V.D.I., Vol. 87, No. 49-50, 11/12/43, p. 794.) (121/8 Germany.)

In the well known phosphatising (anti-rust) process, bath temperatures of the order of 90-95°C. were employed originally.

It has been found that equivalent results can be obtained in the cold, if sodium nitrite is added as an accelerator to a zinc phosphate bath ($pH = 2.7$).

The process has been worked on a large scale for over two years and led to a saving of several thousand tons of coal per month.

The Influence of High Frequency (Supersonic) Longitudinal Vibrations on the Magnetic Response of Nickel. (Part III—Measurements on Nickel Wire with the Ferrograph.) (G. Schmid and V. Jetter, Z. f. Elektrochemie, Vol. 48, No. 10, Oct., 1942, pp. 513-522.) (121/9 Germany.)

The experiments covered nickel wires ranging in diameter from .5 to 2 mm. which were suspended vertically and subjected to longitudinal vibrations of a

frequency of 19,500/sec. by means of a nickel tube oscillator attached to the lower end and operating by magnetrostriction. The upper end of the wire was attached to a steel band passing over horizontal rollers and carrying a scale pan for loading the wire statically. Reflexion of the longitudinal waves at the upper end of the wire was prevented by covering the attachment with Chatterton compound. The vibration amplitude was measured by observing the displacements of a reference point on the wire (suitably illuminated) in a microscope. It was found that this amplitude corresponded to that of the upper end of the oscillator and could therefore be measured by electromagnetic induction. The amplitude was varied by changing the power input of the oscillator, the change in extension corresponding to a range of stress amplitudes from 0 to 3 kg./mm.^{2}. By means of the scale pan loads, the wire could also be subjected to a series of constant static loads from 0 to 5 kg./mm.^{2} simultaneously with the excitation. The magnetic response of the wire (I/H curve) was traced out by a cathode ray oscillograph working in conjunction with a Forster Ferrograph. On this oscillograph, the horizontal deflection corresponds to changes in the applied field strength H whilst the vertical deflection records the changes in the magnetisation I. The ferrograph is operated with alternating current of 50 cycles/sec. which is also the periodicity of the observed I/H curves. The magnetic field thus changes from zero to a maximum value in 1/200 sec.

Before the measurements, the Ni. wires were annealed in an atmosphere of H_2 for two hours at 800°C. and quenched in H_2 at room temperature. The initial permeability of the wires was of the order of 130, but diminished to about 40 with continued mechanical excitation (age hardening).

Most of the experiments were carried out in weak magnetic fields ($H_{max} = \sim.2$ Oersted). Under these conditions, in the absence of static load and high frequency excitation, there is practically no hysteresis and the magnetisation curve shrinks to such narrow dimensions that in general only two parallel lines enclosing a very narrow gap can be detected. As soon as the oscillation, however, is started up the loop broadens out, becoming wider as the oscillation or stress amplitude increases. After a certain maximum amplitude is reached (usually of the order of 1 kg./mm.^{2}) however, the loop shrinks again and approximates to its original narrow shape when its stress amplitude reaches about 2 kg./mm.^{2}. The loop now is however more tilted and I_{max} considerably greater than in the original (unexcited) state. These characteristics are retained if the wire is subjected to a constant tensile load whilst subjected to high frequency excitation. The size of the loop is however reduced by the static load which evidently appears to oppose the vibratory effect. For the same stress intensity, however, the static load produces a much smaller numerical effect. Thus, in the absence of high frequency excitation, a static tensile stress of 1 kg./mm.^{2} reduces the maximum magnetisation of the wire by about 25 per cent. On the other hand, in the absence of static load a high frequency stress vibration with an amplitude of 1 kg./mm.^{2} increases I_{max} 10 times! From this it might appear at first sight as if the pressure component of the high frequency oscillation were responsible for the increased effect. This pressure component can, however, be made to disappear by subjecting the wire to a tensile load in excess of the excitation amplitude. The wire is now always fluctuating in tension, but still shows a six-fold increase in maximum magnetisation compared with no load conditions. Quite different results are, however, obtained if the magnetisation is carried out in strong fields of the order of 50 Oersted. Increasing the amplitude of the high frequency stress (no static load) now progressively reduces the width of the loop without however affecting the general shape of I_{max} appreciably. The diagram approaches more and more to the ideal shape as the stress amplitude is increased to beyond 2 kg./mm.^{2}. It is evident that the high frequency oscillation " frees " formerly irreversible processes in the material already at very weak values of the field H.

Increasing the static load in the absence of high frequency oscillation, however,

both closes the loop and alters its shape, the material evidently becoming increasingly difficult to magnetise.

The interrelation between stress and magnetic behaviour thus depends markedly on the frequency of the stress. This is also shown by the fact that soft annealed Ni. will age harden at a very much smaller stress when the latter is applied at high frequency than when applied statically.

Magnetic tests of the type described are hoped to lead eventually to a better understanding of the changes in material structure under load. Their great advantage lies in the fact that they give average results over the whole volume, whilst electron diffraction tests only deal with surface effects.

Infinitely Variable Gears for Machine Tools. (H. Schopke, Z.V.D.I., Vol. 87, No. 49-50, 11/12/43, pp. 773-780.) (121/10 Germany.)

The article deals mainly with mechanical and electrical drives, hydraulic gears for machine tools having already been considered exhaustively by H. Krug in a previous issue of this journal (R.T.P. Translation No. 1,975).

Infinitely variable gears are of special interest in conjunction with machine tools since they afford means of speeding up production. It is, however, essential that such gears be absolutely reliable. A certain drop in efficiency with wear may be permitted, provided the tool continues to function.

Under no circumstances, however, must gear adjustment or failure lead to the complete stoppage of the machine tool. These very strict requirements have naturally limited the number of practical solutions. Broadly speaking, mechanical gears have found their field on relatively light machine tools, whilst the speed control of heavy tools is generally electrical. Medium tools, on the other hand, can be efficiently controlled by hydraulic gears.

Amongst the mechanical gears, the P.I.V. and Heynau gears have proved outstanding successes. Both gears are of the expanding pulley-belt type, but differ fundamentally in design, the P.I.V. employing grooved pulleys with a special link chain whilst the Heynau utilises a solid steel ring and plain pulleys. P.I.V. gears transmitting up to 30 h.p. with a speed control range of 1 : 6 are fitted extensively to German machine tools and are stated to have functioned very satisfactorily. The Heynau gear transmits rather smaller powers, but its extreme compactness and large speed control (1 : 12) has rendered it a favourite for certain tools such as thread grinders.

Turning now to electrical drives, the Leonard type with D.C. motors and both field and armature control has proved the most successful. It can easily be adapted to work in conjunction with an automatic gear box of normal type and a speed range of 100 : 1 can be covered continuously by simply pressing a number of control buttons. The great flexibility of the drive is of special advantage in planing machines where return strokes of 1 m./sec. are easily achieved by this means. Another interesting example is provided by heavy shears which formerly had to be fitted with flywheels but which now can be controlled satisfactorily by the Leonard system without employing either flywheel or couplings. Although electrical gears, as already explained, are most suited for heavy tools, simplified Leonard controls have lately come into the market for outputs as low as ½ h.p., thus invading a field previously reserved for mechanical gears.

Dangers of the Atmosphere (Translation of Abstract). (T. O. Eriksson, Flygning, Vol. 20, No. 15; Abstracted in Luftwissen, Vol. 10, No. 4, April, 1943, p. 22.) (121/11 Germany.)

The dangers to which aircraft are exposed when flying are fog and clouds, precipitations—of which only hail is likely to cause damage—thunderstorms and icing.

The following steps should be taken to counter the danger of icing :—

1. Follow weather reports;
2. Avoid dangerous altitude levels between 0.5 and 1 km. and temperature just below 0°;
3. Make for other altitude levels once icing conditions are encountered;
4. Do not take-off with iced-up aircraft;
5. Avoid flying close to clouds at temperatures less than +0.5°; and finally
6. Keep an eye on the air thermometer.

The precautions to be taken in thunderstorms owing to the danger of lightning are :—

1. Take in trailing antenna, remove earphones and avoid touching metal parts with bare hands;
2. Fly some distance below cloud, but desist from dangerous low flying;
3. Avoid flying close along front of thunderstorms or try to fly over thunder clouds.

It should also be remembered that there is the danger of an electric shock when the aircraft is electrically charged, *e.g.*, through jettisoning fuel and that gusts are most severe in thunderstorms.

The New German Glider School at Ith. (Luftwelt, Vol. 9, No. 15, 1st Aug. 1942, pp. 298-299.) (121/12 Germany.)

Describing the opening of the new Glider Training School at Ith in the Weser Hills. The school accommodates 120 pupils and 50 gliders and is intended for training young candidates from the Hitler Youth Air Training Corps.

The Ith already has a history of ten years of glider flying and can show records such as those of the 1939 meeting, with 10,840 km. total distance flown, 40 high altitude ascents between 1,000 and 3,000 m., a distance record of 293 km. and an endurance record of 10 hours.

The Influence of Carbon Content on the Hot Zincing of Sheet Steel. (W. Pungel, Stahl and Eisen, Vol. 64, No. 7, 17/2/44, pp. 101-105.) (121/13 Germany.)

The experiments were carried out on 2 mm. sheet steel which was available in eight different batches with C content ranging from .06 to .78 per cent. Samples (20 × 20 cm.) were cut from each batch and were subjected to the following preliminary treatment in lots of 12 :—

(*a*) Sandblasting only.
(*b*) Sandblasting followed by annealing at 750°C. for one hour.
(*c*) Normalised only.

Each lot of 12 was next pickled in 20 per cent. HCl and then hot zinced at 430-440°C. (30 sec. immersion period), six of the samples being treated by the so-called dry process, the wet process being adopted for the remainder. (In the dry process the sample is sprinkled with NH_4Cl powder and dried before immersion, whilst in the wet process, the pickled and still wet specimen is immersed, the bath in this case being covered with a surface layer of NH_4Cl and $ZnCl_2$ flux.)

After zincing, the samples were subjected to the following tests :—

(*a*) Determination of thickness of deposit (chemical method).
(*b*) Adhesion tests (Ericson cup and folding tests).
(*c*) Examination of structure of deposit (sectioned).
(*d*) Bending fatigue strength.

The author concludes that provided the sheet metal surface is thoroughly cleaned by sandblasting before pickling and the pickling liquor removed before dipping, the C content of the sheet exerts no detrimental effect on the zinc deposit and affects neither its uniformity nor adhesion. The thickness of the resulting deposit was practically the same in the wet and dry process and averaged about

700 gm./m.². Uneven deposits, however (black patches), result if the sheet is not sandblasted prior to pickling, and in this case there is some evidence that the nature of the zinc deposit deteriorates with increasing C content of the sheet. This is evidently due to uneven attack of the pickling solution and attempts to overcome this difficulty by altering the nature of the latter have failed so far.

Testing Armour-Piercing Bullets for Cracks After Manufacture. (Z.V.D.I., Vol. 88, No. 3-4, 22/1/44, p. 54.) (121/14 Germany.)

It is claimed that hair cracks are rendered more easily visible if the hardened part is subjected to sudden changes in temperature. For this purpose, two water tanks are provided which are kept at 0° and 100°C. respectively. The parts are transferred from the cold to the hot tank several times and finally examined at room temperature.

Stress Coefficients for Rotating Disks of Conical Profile. (K. E. Bishopp, A.S.M.E., December, 1943, Meeting.) (Preprint available.) (121/15 U.S.A.)

The conical profile is expressed by the equation

$$2h = 2H\,(1 - r/R),$$

where $2H$ = thickness at hub.
r = radius under consideration.
$2h$ = thickness at r.
R = periphery.

Let p and q = mean radial and hoop stresses at r.
ρ = mean density of material.
ω = angular velocity (radians/sec.).

By equating forces on a small element of volume we obtain :—

$$(1 - r/R)\,q - (1 - 2r/R)\,p - r\,(1 - r/R)\,(dp/dr) = \rho\,(1 - r/R)\,r^2\omega^2 \quad . \quad (1)$$

also the compatability of stress and strain requires :—

$$p - \sigma q = (d/dr)\,(rq - \sigma rp) \quad . \quad . \quad . \quad . \quad (2)$$

where σ = Poisson's ratio.

Combination of (1) and (2) yields a hypergeometrical differential equation, which the author solves by using a combination of power and logarithmic series ensuring rapid convergence.

The general solution is of the form :—

$$P(x) = AP_1(x) + BP_2(x) + P_3(x)$$

where $P = (1 - x)\,p$ and $x = r/R$,

$$i.e.,\quad p = Ap_1 + Bp_2 + \rho R^2\omega^2 p_3$$
$$q = Aq_1 + Bq_2 + \rho R^2\omega^2 q_3$$

The author has calculated the stress coefficients p_1, p_2, p_3, and q_1, q_2, q_3, at intervals of $r/R = .01$ to an accuracy of five parts in 2×10^6. A worked out example shows how the geometrical constants A and B are determined in any special case.

It is claimed that the approximation to an arbitrary profile by a series of conical instead of uniform disks leads to a considerable shortening of the mathematical work besides producing a clearer picture of the stress distribution, since no discontinuities (except those due to abrupt change in the profile) arise.

Torsion Fatigue Testing Machine for Large Parts. (Z.V.D.I., Vol. 88, No. 3-4, 22/1/44, p. 54.) (121/16 Germany.)

It is known that the torsional and bending fatigue strength of a specimen depends markedly on its cross-section. Thus the torsional fatigue strength of a crankshaft with a journal diameter of 245 mm. is only about half that of a model

made of the same material to one-sixth scale. It has therefore been necessary to design fatigue testing machines capable of handling large specimens and the author describes a type of torsional machine capable of exerting a periodic twisting moment of up to $\pm$12,000 kgm. superposed on a static moment of up to 12,000 kgm. The amplitude of twist is $\pm 6^\circ$ and high grade steel shafts up to 160 mm. diameter can be tested. The machine is operated by a D.C. shunt motor of 80 K.W., the normal speed being 800 r.p.m. For starting up a two-stage gearbox with reduction ratios of 1 : 24 and 1 : 6 respectively in used, the motor being under Leonard control. At the operational speed of 800 r.p.m. the gears are uncoupled electro-magnetically and the drive is direct.

Shrink Fit Stresses and Deformation. (A. W. Rankin, A.S.M.E. Annual Meeting, Dec., 1943.) (Preprint available.) (121/17 U.S.A.)

The author obtains expressions for the stresses in a solid cylinder of infinite length caused by the application of a uniform radial stress over a single circumferential ring of finite length on the surface of the cylinder.

In an arched shrink fit problem, the determination of its stresses would be extremely complex since the stress distribution in the ring would also vary. A good approximation to the average deformation of the shaft surface can, however, be obtained by assuming the radial stress constant over the length of the ring, *i.e.*, neglecting the stress increase at the ends of the ring.

The author considers the special case of a cylinder of radius r_o subjected to a pressure p lb./sq. in. over a length $2a$. The cylinder is assumed infinitely long and there is no constraint in the axial direction (z axis).

If the whole surface of the cylinder is subjected to a uniform radial stress, the radial deformation u is given by :—

$$u = \{ (1-\gamma)\, r_o p \} / E$$

when γ = Poisson's ratio.

Similarly, the average radial deformation σ of the shaft surface if the pressure is limited to a length $2a$ ($z = \pm a$) can be expressed in the form

$$\delta = \{ (1-\gamma)\, r_o p \} / KE$$

where K is a function of a/r_o and $\to 1$ when $a/r_o \to \infty$ and is given in the following table :—

a/r_o	...	...	K
.05	...	...	3·5
.10	...	...	2.4
.15	...	...	1.9
.20	...	...	1.6
.25	...	...	1.4
.30	...	...	1.3
.40	...	...	1.25
∞	...	...	1.0

The radial, axial and shear stress of the shaft are given explicitly by the author in the form of infinite integrals, which are solved numerically and a series of curves are given from which the actual stresses can be determined in any given case.

The distribution of radial, tangential, axial and shear stress have been worked out numerically for the special case when $a/r_o = .15$. The results are given graphically, the value of the stress being expressed in terms of the applied radial stress p for various axial distances z/r_o with (r/r_o) as parameter (r = particular radius considered). It is interesting to note that the internal radial and tangential stresses at the origin ($r=0$) amount to only 30 per cent. of the applied radial stress, whilst the axial stress at the origin = .18 p. The distribution of shear stress is worthy of note. This stress is zero for the centre of the shaft ($r=0$) and is also zero at the shaft surface with the exception of the lines of discon-

tinuity of the applied stress at $z = \pm .15$ when the shear reaches a maximum of $\pm p/\pi$ on either side of the origin. For intermediate values of r, the shear stress varies from zero at the origin to a maximum value which approaches p/π as $r \to r_0$ and then decreases to zero as $z/r_0 \to \infty$. The shear pattern gives thus a maximum at the surface of the shaft with zero at the centre line and corresponds closely to that exhibited by a short beam under concentrated load. The parabolic shear distribution given by elementary theory applies only to sections remote from the applied loads. Near the loads, the shear in the beam is zero on the axial centre line and has a maximum value which approaches the outer surface of the beam as the point of application of the external load is approached.. The author's theoretical conclusions were tested by shrinking in a steel ring on a cylindrical shaft and measuring the resulting surface deformation by means of a sensitive electrical gauge. The observed values are in good agreement with theory, the actual deformation being roughly half those indicated by the usual two-dimensional theory which ignored shaft effects external to the axial length of the ring.

At the same time, the tangential stress is about 15 per cent. greater than indicated by the simple theory. (This applies to average values and does not consider the stress concentration at the inner edge of the ring.)

The Permeability of Balloon Fabrics Towards Hydrogen. (H. L. van Nonhuys, Melliand Textilberichte, Vol. 24, No. 12, Dec., 1943, pp. 507-511.) (121/18 Holland.)

The permeability process depends on a combination of solution and diffusion of the gas in the fabric and is measured by the volume of gas (litres at *NTP*) which passes through unit surface (1 m.^{2}) in unit time (24 hours). For a good class balloon fabric K should be less than 10. Expressed mathematically (4) we have

$$\rho = KAp/l$$

where ρ = permeability coefficient.
K = diffusion constant.
A = absorption constant.
p = partial pressure of gas.
l = thickness of rubber layer.

For a given material, ρ thus varies directly as p and inversely as l. The following table shows the great effect of nature of gas on ρ (ρ for H_2 assumed = 1):—

Gas.	
H_2	1
N_2	.16
Air	.22
O_2	.45
He	.65
CO_2	2.9
Water vapour	$\sim$ 50

It will be noted that the ordinary laws of diffusion (velocity proportional to square root of density) (2) do not apply. This is due to the fact that the absorption coefficient A plays an important rôle. This coefficient decreases with increasing temperature whilst the diffusion coefficient K increases rapidly.

The overall effect of temperature rise is a marked increase in ρ, amounting to about 5 per cent. per degree rise between the temperature limits 20-30°C.

(If the temperature rise is accompanied by an increase in the pressure difference between the contained H_2 and the outside air, the permeability may show an apparent increase. This is, however, entirely due to expansion of the fabric,

and not to a change in permeability proper since the partial pressures have not been changed.)

The rubber layers employed usually have a total thickness from .15 to .25 mm. Over this range, K varies inversely as the thickness. The absolute value of K depends, however, very much on the nature of the rubber and the period over which it has been exposed to air and light (1), (11).

As already stated, a good quality balloon fabric should have a K factor of less than 10 l./m.^{2} per 24 hours.

It is interesting to note that using synthetic rubber (Neoprene), the K factor is as little as 2.5, whilst even the best natural rubber balloon fabric has K values above 6.

In addition, the synthetic material deteriorates very much less on exposure to air and light. Thus after 14 days exposure (mid-summer), the K factor for this material only increased from 2.4 to 2.7, whilst fabric treated with natural rubber showed nearly 100 per cent. increase in permeability.

Several methods (1, 2) for measuring the permeability of balloon fabric are in use. The simplest consist in measuring the change in pressure in a vessel fitted with a cap of the material and originally filled with H_2 at a pressure of one atmosphere. This method is used in France (5), but leads to erroneous results unless a correction for the amount of air entering the vessel is applied. The most accurate method consists in exposing the two sides of the fabric to a continuous flow of air and hydrogen respectively and measuring the amount of H_2 picked up by the air. This can be done either chemically (7) (burning to water), optically (5) (8) (interferometer) or electrically (2) (6) (measurement of thermal conductivity). The last two methods, although very accurate, require rather expensive apparatus and for this reason, the author follows the chemical method (5, 7, 8, 9, 10).

The apparatus employed by the Rubber Research Institute, Delft, employs a circular piece of fabric 37.5 cm. diameter which forms a central partition in a circular metal box of 8 mm. total depth. The box is immersed in a thermostat (25°C.) and air circulated through one of the chambers at a rate of about 5 litres/hour, whilst H_2 circulates through the other chamber at about three times this rate; the difference of pressure between the two chambers being 30 mm. H_2O.

Before every determination, the two chambers are scavenged at these flow rates for about one hour before readings are taken. The air leaving the apparatus passes through drying tubes (silica gel) and then over a hot platinum spiral. The steam formed by the combustion of the contained H_2 is absorbed in two further silica gel tubes and determined by weighing. The diaphragm box is placed in the thermostat so that the fabric is vertical, the air entering its appropriate compartment from below and leaving at the top, whilst the reverse flow direction is employed for the H_2.

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The Single-Seat Slow Speed Aircraft L.F.1 Built by the Brunswick Technical High School. (H. Winter, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, pp. 43-46.) (121/19 Germany.)

The aircraft is a high wing (parasol) monoplane with the following principal characteristics:—

Weight (empty)	251 kg.
Flying weight	355 kg.
Span	8.02 m.
Overall length	6.08 m.
Max. height	2.38 m.
Wing loading	41.8 kg./m.^{2}.
Power loading	7 kg./h.p.
Engine	Zundapp. 50 h.p. at 2,350 r.p.m.

The aircraft is built mainly of plywood and satisfies the P.3 class of the German Aircraft Strength Specification (sport and travel). In order to utilise fully very steep angles of approach, the undercarriage has been considerably strengthened. In order to facilitate transport, the wing and tail planes are divided along the central axis and can be folded back along the fuselage, the hangar space required then amounting to only 6 × 1.6 × 2.4 m. The wing is fitted with an adjustable nose slat made of metal (hand controlled). Both ailerons and landing flaps have hinge slats, and it is possible to utilise the ailerons as additional high lift devices.

The wing mounting is such that the setting angle can be readily varied on the ground over the range 0 to 16° with regard to the fuselage axis. The horizontal tail plane is placed well above the slip stream and provided with a similar adjustment for incidence.

The performance of the aircraft at a flying weight of 355 kg. is given in the following table (calm air):—

Take-off run (zero flap deflection)	100-150 m.
,, flap at 45°	60-80 m.
Landing run (zero flap)	70-85 m.
No brakes, 45° flap	60-82 m.
Landing run (zero flap)	35-70 m.
With brakes, 45° flap	30-40 m.
Max. speed—	
Zero flap, nose slat fully open	140 km./h.
,, slat half open	151 km./h.
,, slat closed	165 km./h.
45° flap, slat fully open	120 km./h.
Min. speed—	
Zero flap	67 km./h.
45° flap	47 km./h.
Time of climb (slat open)	1,000 m. in 6.7 min. 2,000 m. in 15 min. 3,000 m. in 28 min.
Ceiling (open slat)	3,800 m.
,, (closed slat)	4,200 m.

With a little practice, both take-off and landing can be carried out on a field 100 m. long and 20 m. wide. The aircraft is intended for research on the aero-

dynamics of slow speed flight and further reports will be issued by the Technical High School in due course.

Research for Aeronautics: Its Planning and Application. (W. S. Farren, The Engineer, Vol. 157, Nos. 4,598-4,599, pp. 146-148 and 164-167.) (7th Wright Brothers Lecture.) (121/20 Great Britain.)

Aeronautical research can only be intelligently planned, pursued and applied if there exists intimate and whole-hearted collaboration between the research worker, the designer, the constructor and user.

The main efforts should be directed to advances in basic theory. Experimental information must be provided both to extend the theory and reduce its limitations. Lastly, we must ensure that the experimental application is made in such conditions that the practical value of the theory is rendered obvious to the user.

A case of imperfect planning in the past is provided by the reduction in the cooling drag of an aeroplane power plant, theory indicating a large possible saving already many years ago. In this case an earlier realisation by the designer of the outstanding advance that was within his grasp would have brought him to a closer co-operation with his only source of specific information—the research establishments. These in turn were backward in that they did not supply the information in a convincing form, directly applicable to practical problems. Finally, the user, not realising fully the possibility was only lukewarm in face of possible reduction in reliability or increased maintenance difficulties. He therefore did not force the pace of development till rather late in the day.

On the other hand, an example of good planning and excellent co-operation was shown by the boundary layer research carried out at Cambridge University, which led to important results in a relatively short space of time.

The final criterion of success in research is the extent to which the aircraft has improved with time. For this purpose the author compares a typical fighter and bomber of the year 1917 with corresponding examples of 1942. The types chosen are the S.E.5 and Spitfire and the Handley Page 0/400 and Lancaster respectively.

The most obvious difference between the old and new types is the change over from biplane to monoplane construction, the total wing area remaining roughly the same. The following table gives the ratio of some characteristic data, that of the older machine being taken as unity in each case:—

TABLE I.

	Spitfire/SE5.	Lancaster/0-400.
Wing area	1.0	0.75
Total weight	4.0	5.0
Military load	4.0	8.0
Power	7.0	7.0
Speed	3.0	2.75
Total drag	0.5	0.50
Touch down and take-off speed ...	1.5	1.8

It will be noted that the most outstanding facts are a seven-fold increase in power accompanied by a four-five-fold increase in total weight together with a three-fold increase in maximum speed.

Moreover, the weight analysis given below shows that the weight of the power plant forms either the same or even a smaller proportion of the total weight, the weight per h.p. being only about 4/7 of the 1917 value.

TABLE II.

	SE5. %	Spitfire. %	0.400. %	Lancaster. %
Structure ...	30	29	40	31
Power plant ...	37	38	22	16
Fuel	15	17	19	20
Load	18	16	19	23

This improvement in specific weight is largely due to the supercharger which is now an essential feature of every aircraft engine, but was not available in 1917. Credit must also be given to the modern high octane fuels which make it possible to utilise the supercharger to the utmost.

The thermal efficiency of the engine has also been improved so that the fuel consumption per net b.h.p./hour has scarcely changed in spite of the work absorbed in driving the supercharger.

Another outstanding feature in Table I is the large reduction in drag of the modern designs.

An analysis of this drag is given below:—

TABLE III.

	Drag at 100ft./sec. lb. SE5.	Spitfire.
Wings	28	20
Wing bracing	15	—
Body and cooling	44	39
Tail surface	7	4
Undercarriage	16	—
Total ...	110	63

The absence of external bracing and the use of a retractable undercarriage alone account for a 30 per cent. reduction in drag, the remainder being due to the provision of smoother surfaces. Of special interest is the fact that the combined body and cooling drag of the Spitfire is 10 per cent. less than that of the 1917 machine in spite of the seven-fold increase in power output.

This reduction in drag also accounts for the fact that the modern machine for the same percentage of fuel weight has a 40 per cent. better range and a very much greater cruising speed.

Of course the higher wing loading automatically leads to an increase in the landing and take-off speeds. With the help of flaps and variable pitch propellers, however, this increase has been kept within permissible bounds. Both these features are of relatively modern development and without their help prohibitive air fields would be required.

We have dealt so far with aerodynamic and power plant improvement only. A glance at Table II shows, however, that the structural engineer has also taken a hand. Thus the metal structure of the robust Spitfire with a primary load factor of 10 forms a slightly smaller percentage of lb. total aircraft weight than the wood and canvas of the S.E.5 with a load factor of only 6. It is, however, in the large machines that the structural engineer, by the adoption of revolutionary designs, has made most progress. It used to be thought that the percentage structural weight must necessarily increase with the total weight of the machine. Table II shows this increase for the Handley Page 0/400. For the Lancaster, however, the percentage structure weight is practically back at the S.E.5 value. This is not only due to the employment of new materials as

such, but rather to the employment of the material to better advantage so that the percentage of lowly stressed materials is reduced to the utmost. It is here that elastic theory, combined with refined practical testing, both on the ground and in the air, has made tremendous strides. Additional problems successfully tackled cover structural vibrations (especially those set up by aerodynamic forces or flutter), stability and control. As regards the last two factors, however, much more remains to be done and there is room for a wholesale improvement in the method of attack, especially the co-ordination of experiments in flight.

As regards problems of the immediate future, high altitude flying takes the front rank. Economic cruising under these conditions calls urgently for further developments in laminar flow aerofoils, whilst high speed flight will only become possible if the increase in drag associated with the shock wave can be reduced.

It may well be that the whole layout of such high altitude aircraft will be different from what we have been accustomed. In the future, the thermodynamic problems of the engine will also become aerodynamic and the advent of jet propulsion will bring in its wake a host of new problems on stability and control.

The many new problems awaiting us are largely interdependent and success in dealing with them depends on assembling and co-ordinating all efforts not only of a single team but of many teams of workers. It is the duty of the research director to weld these parts together, and for this purpose it is essential that each research worker should know exactly why the work is being done and should be convinced of its value. There is no single or simple formula by which to determine the best method of handling research. Confidence of the staff in their leaders will, however, overcome most difficulties and conserve that enthusiasm so essential to research.

LIST OF SELECTED TRANSLATIONS.

No. 67.

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Lists of selected translations have appeared in this publication since September, 1938.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
		AERO AND HYDRODYNAMICS.
2069	——	*On the Theory of the Unsteady Two-Dimensional Compression Shock.* (Ing. Archiv., Vol. 14, No. 1, 1943, pp. 14-20.)
2070	Schmidt, K.... ...	*The Experimental Solution of Two-Dimensional Potential Problems by Electrical Dipole Fields.* (Ing. Archiv., Vol. 14, No. 1, 1943, pp. 30-52.)
2071	Schultz-Grunow, F...	*Non-Steady Spherically Symmetrical Gas Motion and Non-Steady Gas Flow in Nozzles and Diffusers.* (Ing. Archiv., Vol. 14, No. 1, 1943, pp. 21-25.)
2073	Buri, A.	*A Method of Calculation for the Turbulent Boundary Layer with Accelerated and Retarded Basic Flow.* (Thesis No. 652, Federal Technical College, Zurich, 1931.)
2074	——	*Some Applications for the Method of Hydraulic Analogy.* (Pub. Sci. et Tech. du Min. de l'Air, No. 144, 1939, pp. 43-77.)
		AIRCRAFT AND ACCESSORIES.
2089	——	*Wing Nose De-Icing by Endless Belt Dipping Process. German Patent* 720,670. (Flugsport, Vol. 34, No. 14, 8/7/42, p. 129.)
2090	Focke	*Helicopter Elevator Controls. German Patent* 683,137. (Flugsport, Vol. 32, No. 1, 3/1/40, p. 75.)
2092	Heine Stamm	*Pitch Changing Gear for Airscrews. German Patent* 694,111. (Flugsport, Vol. 32, No. 20, 25/9/40, p. 134.)
		MATERIALS.
2068	——	*Rapid Determination of Magnesium Content of Al./Mg. Alloys.* (Z.V.D.I., Vol. 86, Nos. 35-36, 5/9/42, p. 558.)
2086	Akimov, C. W. Oleschko, A. S. ...	*The Structure Corrosion of Aluminium.* (Korr. und Metallschutz, Vol. 11, No. 6, 1935, pp. 125-132.)

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2063	——	*Compensated Caliper Gauge for Measuring the Wall Thickness of Long Tubes.* (Aluminium, Vol. 25, No. 10, October, 1943, p. 362.)
2075	Pfau, H.	*Geared-Down Revolution Counter for Ultra High Speeds.* (Luftwissen, Vol. 7, No. 12, Dec., 1940, pp. 424-426.)
2087	Meinke, H.	*The Bolometer as an Intensity Meter for Ultra-Short Waves.* (E.N.T., Vol. 19, Nos. 3-4, March-April, 1942, pp. 27-40.)
		THEORY OF ELASTICITY.
2062	Shimoyama, Y. ...	*Vibration of a Running Belt.* (Trans. Soc. Mech. Engineering, Japan, Vol. 6, No. 23, May, 1940.)
2066	——	*The Drawing of Tough Metals Through Convergent Conical Dies.* (Ing. Archiv., Vol. 13, No. 8, 1943, pp. 342-354.)
2067	——	*Determination of Lowest Natural Bending Frequency of Axial Flow Compressor Blades.* (Mitt. der Deutschen Akad. Luftfahrtforschung, No. 1, May, 1942.)
		PRODUCTION.
2059	Trutnovsky, K. ...	*Slot and Labyrinth Seals.* (Z.V.D.I., Vol. 83, No. 29, 22/7/39, pp. 857-858.)
2064	Junkers	*Simple Device for the Cold Bending of Light Alloy Tubes.* (Der Flieger, Vol. 22, No. 10, October, 1943, p. 308.)
2091	Dornier	*Combination of Corrugated and Plain Metal Sheets. German Patent* 685,266. (Flugsport, Vol. 32, No. 1, 3/1/40, p. 74.)
2095	Junkers	*Simple Device for the Rapid Removal of Burrs in the Flared End Sections of Light Alloy Pipes.* (Der Flieger, Vol. 22, No. 10, October, 1943, p. 308.)

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1	17089	G.B.	*Spreading Air News—How the Public Relations Units of the R.A.F. Operate in the Field.* (Flight, Vol. 44, No. 1,823, 2/12/43, pp. 606-608.)
2	17328	G.B.	*Empire Central Flying School.* (Flight, Vol. 44, No. 1,824, 9/12/43, pp. 644-645.)
3	17397	U.S.A. ...	*The War Training Service Programme.* (R. M. Stewart, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 74, 151.)
4	17597	Germany ...	*The Second National Competition of the Hitler Youth at Quedlinburg (Sport, Models. Gliding, Aircraft Recognition, Morse, Handicraft).* (A. Jubre, Der Deutsche Sportflieger, Vol. 10, Oct., 1943, pp. 159-161.)
5	17782	U.S.A. ...	*Erie Proving Ground—The Largest Establishment for Proof Testing Artillery.* (F. E. Rundell, Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, p. 581.)

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6	17831	G.B.	*U.S. Eighth Air Force Organisation.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 687.)
7	17841	G.B.	*Empire Flying Training.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, pp. 700-701.)
8	17929	U.S.A. ...	*Building the A.A.F. Part III—Raid Training* (Aviation, Vol. 42, No. 10, October, 1943, pp. 229-231, 305.)
9	17981	U.S.A. ...	*List of Preflight Training Films Available in the U.S.A.* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, p. 129.)
10	18125	G.B.	*United States Combat Formations.* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 733.)
11	18271	G.B.	*Invasion Air Command.* (Flight, Vol. 45, No. 1,828, 6/1/44, pp. 14-15.)
12	18309	G.B.	*Coastal Command.* (Flight, Vol. 44, No. 1,827, 30/12/43, pp. 717-719.)
13	18315	G.B.	*The Air War in 1943.* (F. A. de V. Robertson, Flight, Vol. 44, No. 1,827, 30/12/43, pp. 725-731.
14	18430	U.S.A. ...	*Devices Help Train Paratroopers.* (A. Christopher, U.S. Air Services, Vol. 28, No. 11, November, 1943, p. 27.)
			Strategy and Tactics.
15	17216	G.B.	*Air Force Targets—XXIV.* (The Engineer, Vol. 175, No. 4,587, 10/12/43, pp. 458-461.)
16	17406	U.S.A. ...	*The Air Assault on Japan—U.S. Navy's New Carrier Armada.* (J. G. Norris, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 21,24, 86.)
17	17407	U.S.A. ...	*Attack by Glider.* (J. Stuart, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 26-27, 98-200.)
18	17408	U.S.A. ...	*Canada's Air Diplomacy.* (F. Flaherty, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 28-30.)
19	17409	U.S.A. ...	*Air Power and "Festung Europe."* (H. A. De Weerd, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 32-33, 151-246.)
20	17479	Germany ...	*Total War Economy in Germany.* (Inter. Avia., No. 884-885, 14/9/43, pp. 20-22.)
21	17496	U.S.A. ...	*Wireless Controlled Target Aircraft.* (Inter. Avia., No. 888, 6/10/43, p. 18.)
22	17536	Germany ...	*British Attacks on Hamburg and Hanover—Photographs of Machines Shot Down.* (Signal, No. 18 (Pt. 2), Sept., 1943, pp. 11-13.)
23	17558	U.S.A. ...	*Limitation of Air Warfare.* (H. S. Leroy, Air Law Review, Vol. 12, No. 1, January, 1941, pp. 19-33.)
24	17596	Germany ...	*Possible Military Uses of the Helicopter.* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, pp. 157-158.)

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26	17628	G.B.	*Air Attacks on Germany—Conflicting Figures on Losses.* (Inter. Avia., No. 889-890, 16/10/43, p. 22.)
27	17629	G.B.	*Air Raid Casualties in Great Britain.* (Inter. Avia., No. 889-890, 16/10/43, p. 26.)
28	17630	G.B.	*Performance of Anglo-American Paratroops in Sicily.* (Inter. Avia., No. 889-890, 16/10/43, pp. 23-24.)
29	17785	U.S.A. ...	*Skip Bombing.* (Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, p. 588.)
30	17921	U.S.A. ...	*Fighting Line-Abreast (Successful Fighter Plane Tactics Used in Defence of Malta).* (J. L. Lowrey, Aviation, Vol. 42, No. 10, October, 1943, pp. 192-193, 314, 321.)
31	17999	U.S.A. ...	*Bombing the American Way (Tactics and Strategy) —Part II.* (E. E. Miller, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 118-119, 333-341.)
32	18290	G.B.	*Air Force Targets in 1943.* (Engineer, Vol. 177, No. 4,591, 7/1/44, pp. 16-18.)
33	18432	U.S.A. ...	*Russian System of Fighter Tactics.* (U.S. Air Services, Vol. 28, No. 11, November, 1943, p. 40.)
34	18453	Switzerland ...	*Air War of To-day and To-morrow (Allied Raids and German Defence Methods).* (Inter. Avia., No. 891-892, 30/10/43, pp. 1-7.)
35	18464	U.S.A. ...	*New Total War Measures in Germany.* (Inter. Avia., No. 891-892, 30/10/43, pp. 18-19.)

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36	17097	G.B.	*Russian Aircraft Materials—Wide Use of Wood.* (Flight, Vol. 44, No. 1,823, 2/12/43, pp. 622-623.)
37	17322	U.S.A. ...	*New Nose of the Mitchell B. 25 with Two .5 in. Machine Guns and a 75 mm. Cannon (Photo).* (Flight, Vol. 44, No. 1,824, 9/12/43, p. 633.)
38	17330	G.B.	*Converting Hurricane and Spitfire Merlins from Two-Pitch to Constant Speed Airscrews during the Battle of Britain.* (Flight, Vol. 44, No. 1,824, 9/12/43, pp. 648-649.)
39	17452	G.B.	*German Aircraft—Structure Details.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 34.)
40	17458	U.S.A. ...	*Vega's "Chin Turret" (Photo).* (American Aviation, Vol. 7, No. 11, 1/11/43, p. 26.)
41	17470	G.B.	*Emergency Pressure Device for Operating Hydraulic System (Cartridge).* (Inter. Avia., No. 884-885, 14/9/43, p. 12.)
42	17585	G.B.	*A Metallurgical Study of Enemy Aircraft Components (Diaphragm Capsules and Bellows Fittings of Control Units and Tubing from Bourdon Gauge) (M.A.P. Reports).* (Metal Industry, Vol. 63, No. 25, 17/12/43, pp. 395-396.)

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43	17599	Germany ...	*The Messerschmitt Monostrut Landing Wheel as a Precursor of the Retractable Undercarriage.* (K. Eickel, Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, pp. 162-163.)
44	17615	U.S.A. ...	*Bullet Proof Glass for Flying Fortresses (2 in. Thick, 18 lb./sq. foot, Perfect Against .3 in. Cal. Gun at 100 feet).* (Inter. Avia., No. 889-890, 16/10/43, p. 12.)
45	17770	G.B.	*Protecting German Oil Tanks Against Air Attack (German Methods).* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, p. 659.)
46	17812	U.S.A. ...	*Converting Airacobra into a Two-Place Trainer (Photo).* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 31.)
47	17820	G.B.	*Synthetics in Aircraft.* (J. Seaman, Mechanical World, Vol. 114, No. 2,971, 10/12/43, pp. 670-673.)
48	17896	G.B.	*Anodic Films on Aluminium Parts of German Aircraft (M.A.P. Reports).* (Metal Industry, Vol. 63, No. 26, 24/12/43, p. 412.)
49	17905	U.S.A. ...	*Design Analysis of the Fleetwings B.T.-12.* (D. Baker, Aviation, Vol. 42, No. 10, October, 1943, pp. 119-132, 356.)
50	17919	U.S.A. ...	*Air Corps Materials (Data Sheet).* (Aviation, Vol. 42, No. 10, October, 1943, p. 183.)
51	17920	U.S.A. ...	*Air Corps Standards—Tube Fittings A.N. 811 (Data Sheet).* (Aviation, Vol. 42, No. 10, Oct., 1943, p. 185.)
52	17993	Canada ...	*Comparison of Structural Details of Leading German Aircraft (Part 1).* (Commercial Aviation, Vol. 5, No. 9, September, 1943, pp. 90-100.)
53	18009	U.S.A. ...	*Army Air Force Standards (Data Sheets).* (Aviation, Vol. 42, No. 9, Sept., 1943, pp. 177-192.)
54	18080	U.S.A. ...	*Development of the Heinkel III Bomber.* (M. W. Bourdon, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, pp. 24-25, 166.)
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56	18093	U.S.A. ...	*Comparison of Hydraulic and Electrical Accessory Systems in Aircraft (Weight Analysis).* (*Abstract of S.A.E. Paper.*) (W. C. Trautman and R. E. Middleton, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 102.)
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58	18198	U.S.A. ...	*Passive Defence—The Protective Armouring of Military Aircraft.* (H. J. Alter, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-19.)

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59	18202	U.S.A. ...	*Magnesium in German Aircraft.* (H. W. Schmidt, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-14.)
60	18413	U.S.A. ...	*New Turrets on American Heavy Bombers.* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 26-27.)
61	18428	U.S.A. ...	*New Type of Light-weight Flooring Used in the Mars Transport (Laminated Paper Base Phenolic Plastic).* (Aeroplane, Vol. 66, No. 1,702, 7/1/44, p. 19.)
62	19455	U.S.A. ...	*Boeing B. 17 (New Nose Turret and External Bomb Racks).* (Inter. Avia., No. 891-892, 30/10/43, pp. 11-12.)
			Special Equipment.
63	17094	G.B.	*Anti-Icing System Uses Engine Exhaust Heat.* (H. W. Perry, Flight, Vol. 44, No. 1,823, 2/12/43, p. 618.)
64	17174	U.S.A. ...	*Portable Searchlight for Army and Navy.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 20, 25/10/43, p. 1726.)
65	17300	G.B.	*Portable Runways.* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, p. 667.)
66	17403	U.S.A. ...	*Parachute Flares and Photo Flash Bombs.* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 130.)
67	17454	G.B.	*Consolidated De-Icing System (Exhaust).* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 35.)
68	17497	U.S.A. ...	*Automatic Pilot for Bomb Runs.* (Inter. Avia., No. 888, 6/10/43, pp. 18-19.)
69	17579	G.B.	*Special Arms Container Dropped by Parachute (Photo).* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 658.)
70	17594	G.B.	*Small Compressed Air Unit.* (Engineer, Vol. 176, No. 4,588, 17/12/43, p. 490.)
71	17681	U.S.A. ...	*Parachutes in Tropics Protected by Air Conditioning.* (Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, pp. 326-327.)
72	17916	U.S.A. ...	*Exhaust Anti-Icer System Developed by Consolidated Vultee Aircraft Corp. (Design Detail).* (Aviation, Vol. 42, No. 10, October, 1943, p. 177.)
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78	18298	G.B.	*A Portable Aspirator for Gas Sampling.* (H. C. Stephenson, Chemistry and Industry, Vol. 63, No. 1, 1/1/44, pp. 3-4.)
79	18460	G.B.	*Device for Cutting Barrage Balloon Cables.* (Inter. Avia., No. 891-892, 30/10/43, p. 17.)

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80	17088	Germany ...	*Rockets as Secret Weapons—Some German Rocket Experiments and Developments.* (Flight, Vol. 44, No. 1,823, 2/12/43, p. 605.)
81	17090	G.B.	*Rocket Research—An Account of Experiments Carried Out in Scotland from 1934 to 1939.* (J. J. Smith and J. Dennis, Flight, Vol. 44, No. 1,823, 2/12/43, pp. 610-613.)
82	17305	G.B.	*75 mm. Cannon Mounted on Mitchell Two-Motor Aircraft.* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, pp. 660, 664.)
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84	17410	U.S.A. ...	*New Armament for Liberator (Photo).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 45.)
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94	17781	Germany ...	*The Armament of the Focke-Wulf 190 A-3 Aircraft.* (Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, p. 608.)
95	17783	U.S.A. ...	*High Speed Tractors for Guns (Photos).* (Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, p. 583.)
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101	17392	G.B.	*Bristol Blenheim IV (Recognition Details).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 69.)
102	17414	Canada ...	*Handling the Anson V Trainer.* (R. A. Keith, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 53-55.)
103	17492	G.B.	*Bristol Beaufighter.* (Inter. Avia., No. 888, 6/10/43, pp. 1, 14-15.)
104	17840	G.B.	*Avro Lancaster II (four 1,650 h.p. Bristol Hercules XVI Motors) (Photos).* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, pp. 698-699.)
105	17842	G.B.	*The Armstrong-Whitworth Ensign (Recognition Details).* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 703.)
106	17965	G.B.	*The Percival Proctor (All-Wood Construction: Construction and Manufacture of Fuselage and Wings).* (W. E. Goff, Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 5-12.)
107	18016	G.B.	*Halifax II Features Higher Speed.* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 232.)
108	18249	G.B.	*Mosquito Undercarriage Lag (Photo).* (Inter. Avia., Vol. —, No. 881, 19/8/43, p. 1.)
109	18269	G.B.	*Looking Back (Review of Aircraft Types—1943).* (Flight, Vol. 45, No. 1,828, 6/1/44, pp. 7-12.)

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110	18277	G.B., U.S.A. ...	*Aircraft in Flying Attitudes (Spitfire IX, Hellcat, Mustang, Mosquito)—Recognition Details* (Flight, Vol. 45, No. 1,828, 6/1/44, p. a-b.)
111	18322	G.B.	*Some Aeroplanes of the Year 1943 (Photos).* (The Aeroplane, Vol. 65, No. 1,701, 31/12/43, pp. 756-757.)
			Military Types of Aircraft (U.S.S.R.).
112	17291	U.S.S.R. ...	*MBR-2 Reconnaissance Flying Boat.* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 633.)
113	17480	U.S.S.R. ...	*New Russian Military Types (Yak-9, Lagg-5, MBR-6).* (Inter. Avia., No. 884-885, 14/9/43, pp. 22-23.)
114	17487	U.S.S.R. ...	*Lagg-3 Fighter.* (Inter. Avia., No. 888, 6/10/43, pp. 10-11.)
115	17569	U.S.S.R. ...	*Russian Single-Seater Fighter—Mig-3 (Recognition Details).* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 666.)
116	17617	U.S.S.R. ...	*Lagg-3 Fighter (Silhouette).* (Inter. Avia., No. 889-890, 16/10/43, p. 1.)
117	17640	U.S.S.R. ...	*Lagg-5 Single-Seat Fighter.* (Inter. Avia., No. 878, 29/7/43, p. 13.)
118	18117	U.S.S.R. ...	*Tupolev PS-35 Transport Aircraft (Photo)* (Two 850 *h.p. M. 85 Motors*). (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 714.)
119	18268	U.S.S.R. ...	*Russian Fighter—Yak-1 (Photo).* (Flight, Vol. 45, No. 1,828, 6/1/44, p. 4.)
120	18425	G.B.	*Aeroplanes of the Red Air Forces—III (Silhouettes).* (Aeroplane, Vol. 66, No. 1,702, 7/1/44, p. 17.)
			Military Types of Aircraft (U.S.A.).
121	17091	U.S.A. ...	*Lockheed Lodestar (C-56 and C-57) (Recognition Details).* (Flight, Vol. 44, No. 1,823, 2/12/43, p. 614.)
122	17325	U.S.A. ...	*Curtiss AT-9 (Jeep) (Recognition Details).* (Flight, Vol. 44, No. 1,824, 9/12/43, pp. a-b.)
123	17326	U.S.A. ...	*Beechcroft AT-10 (Wichita) (Recognition Details).* (Flight, Vol. 44, No. 1,824, 9/12/43, pp. a-b.)
124	17391	U.S.A. ...	*Lockheed Lightning (Recognition Details).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 68.)
125	17396	U.S.A. ...	*Douglas "Bolo" (B-18A) (Photo).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 71.)
126	17399	U.S.A. ...	*Construction of the Bell Airacobra (P-39) (Detail Drawings).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 116.)
127	17413	U.S.A. ...	*Douglas Skytrain for Carrying Troops and Equipment.* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 52-53, 161.)
128	17473	U.S.A. ...	*A-36 Invader (P-51 Mustang).* (Inter. Avia., No. 884-885, 14/9/43, pp. 16-17.)
129	17474	U.S.A. ...	*Torpedo Bomber "Sea Wolf."* (Inter. Avia., Vol. —, No. 884-885, 14/9/43, p. 17.)

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130	17486	U.S.A.	...	*North American B25C "Mitchell" Fuselage Nose (Photo).* (Inter. Avia., No. 884-885, 14/9/43, p. 1.)
131	17488	U.S.A.	...	*Lockheed-Vega PV-1 (Long Range Patrol Bomber) (Photo).* (Inter. Avia., No. 888, 6/10/43, p. 1.)
132	17601	U.S.A.	...	*Design Details of Liberator III (Rear Fuselage Interior, Tail Turret, Ground Drift Indicator).* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 163.)
133	17602	U.S.A.	...	*Republic "Thunderbolt" (Photographs).* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 166.)
134	17607	U.S.A.	...	*Taylocraft Light Aeroplane "Auster" for Liaison and Communication Duties.* (Inter. Avia., No. 889-890, 16/10/43, pp. 9-10.)
135	17609	U.S.A.	...	*Martin Marauder III (B-26C) Medium Bomber—I.* (Inter. Avia., No. 889-890, 16/10/43, pp. 10-11.)
136	17614	U.S.A.	...	*Consolidated B-24H Long Range Bomber (Liberator Development).* (Inter. Avia., No. 889-890, 16/10/43, pp. 11-12.)
137	17632	U.S.A.	...	*Truman Report on American Military Aircraft.* (Inter. Avia., No. 878, 29/7/43, pp. 8-10.)
138	17636	U.S.A.	...	*Martin PBM-3 "Mariner" Flying Boat.* (Inter. Avia., No. 878, 29/7/43, p. 11.)
139	17805	U.S.A.	...	*Martin "Mars" for U.S. Navy (Photo).* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 24.)
140	17833	U.S.A.	...	*Boeing B-17 G Fortress (New Improved Version).* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 689.)
141	17848	U.S.A.	...	*Boeing 314-A (Clipper) (Recognition Details).* (Flight, Vol. 44, No. 1,826, 23/12/43, p. 694.)
142	17849	U.S.A.	...	*Boeing Sea Ranger (Recognition Details).* (Flight, Vol. 44, No. 1,826, 23/12/43, p. 695.)
143	18023	U.S.A.	...	*Design Detail of Consolidated Vultee PBY Catalina.* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 187.)
144	18119	U.S.A.	...	*Douglas C-54A Skymaster (Photo).* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 720.)
145	18123	U.S.A.	...	*R.A.F. Fortresses in the Battle of Atlantic (Photos).* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, pp. 726-727.)
146	18237	U.S.A.	...	*Grumman Hellcat Ship-Based Fighter.* (Inter. Avia., No. 881, 19/8/43, p. 10.)
147	18311	U.S.A.	...	*America's New Bombers—B29.* (Flight, Vol. 44, No. 1,827, 30/12/43, p. 721.)
148	18312	U.S.A.	...	*Ryan PT-25 (Recognition Details).* (Flight, Vol. 44, No. 1,827, 30/12/43, p. 722.)
149	18313	U.S.A.	...	*Interstate L-6 (Recognition Details).* (Flight, Vol. 44, No. 1,827, 30/12/43, p. 723.)
150	18321	U.S.A.	...	*The Beech Kansas (Recognition Details).* (The Aeroplane, Vol. 45, No. 1,701, 31/12/43, p. 761.)
151	18415	U.S.A.	...	*Development and Engineering Features of Lockheed P-38 Fighter.* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 32-36.)

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152	18431	U.S.A. ...	*Flying Fortress with New "Chin Turret."* (U.S. Air Services, Vol. 28, No. 11, November, 1943, p. 34.)
153	18462	U.S.A. ...	*Piper PT Trainer (Photograph).* (Inter. Avia., No. 891-892, 30/10/43, p. 1.)
154	18463	U.S.A. ...	*North American P-51B "Mustang II" Fighter (Photographs).* (Inter. Avia., No. 891-892, 30/10/43, p. 1.)

Military Types of Aircraft (Germany).

155	17288	Germany ...	*Reports of New Heinkel Four-Motor Aircraft.* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, pp. 630-631.)
156	17294	Germany ...	*The Me. 323 Six-Motor Transport (Photo).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 636.)
157	17298	Germany ...	*The Dornier Do. 17P (Recognition Details).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, pp. 648-649.)
158	17306	Germany ...	*Dornier 17P with a Hook for Glider Towing (Photo).* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, p. 665.)
159	17473	Germany ...	*Messerschmitt Types (Me. 109F, 109G, 210A1).* (Inter. Avia., No. 884-885, 14/9/43, p. 20.)
160	17580	Germany ...	*Me. 210 (Photo).* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 658.)
161	17618	Germany ...	*Ju. 87D Dive Bomber.* (Inter. Avia., No. 889-890, 16/10/43, p. 18.)
162	17619	Germany ...	*Me. 410 Long Range Fighter.* (Inter. Avia., No. 889-890, 16/10/43, p. 18.)
163	17620	Germany ...	*Siebel Si. 204 Small Transport.* (Inter. Avia., No. 889-890, 16/10/43, p. 19.)
164	17647	Germany ...	*Junkers Ju. 905 with Loading Ramp (Photo).* (Inter. Avia., No. 878, 29/7/43, Frontispiece.)
165	18022	Germany ...	*Design Detail Drawings of Ju. 88.* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 189.)
166	18026	Germany ...	*Design Details of Junkers 88.* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 189.)
167	18118	Germany ...	*German Reconnaissance Aircraft Me. 210 (Photo).* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 717.)
168	18240	Germany ...	*Dornier Do. 217 E2 Level and Dive Bomber.* (Inter. Avia., No. 881, 19/8/43, p. 8.)
169	18314	Germany ...	*Heinkel He. 177 Bomber (Photo).* (Flight, Vol. 44, No. 1,827, 30/12/43, p. 724.)
170	18461	Germany ...	*Focke-Wulf F.W. 290 Fighter Fitted with B.M.W. 802 Engine (2,000 h.p. 18-Cylinder Radial).* (Inter. Avia., No. 891-892, 30/10/43, p. 18.)

Military Types of Aircraft (Italy).

171	17292	Italy	*Cant Z. 506 B Airone Torpedo Bomber (Photo).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 634.)
172	17482	Italy	*Caproni Ca. 331 Light Bomber.* (Inter. Avia., No. 884-885, 14/9/43, pp. 23 and I.)
173	17483	Italy	*Reggiane Re. 2,003 Two-Seater Fighter.* (Inter. Avia., No. 884-885, 14/9/43, pp. 23-27 and I.)

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174	17624	Italy	*Reggiane Re. 2,001 Single-Seat Fighter.* (Inter. Avia., No. 889-890, 16/10/43, p. 20.)
175	17625	Italy	*Fiat R.S. 14 Seaplane.* (Inter. Avia., No. 889-890, 16/10/43, p. 20.)
176	17641	Italy	*Piaggio P. 108B Heavy Bomber.* (Inter. Avia., No. 878, 29/7/43, p. 14.)
177	17642	Italy	*Reggiane Re. 2,000 Fighter (Catapult Take-off).* (Inter. Avia., No. 878, 29/7/43, p. 14.)
178	18245	Italy	*Macchi C. 202 Fighter.* (Inter. Avia., No. 881, 19/8/43, p. 12.)
			Military Types of Aircraft (Japan).
179	17394	Japan ...	*Clipped Wing Mitsubishi Zero (Photo).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 70.)
180	17481	Japan ...	*New Japanese Types (Mitsubishi S-00-2 Fighter, Kawanishi H-02 Flying Boat).* (Inter. Avia., No. 884-885, 14/9/43, p. 23.)
181	17570	Japan ...	*Mitsubishi KB-98 (Marigane II) (Recognition Details).* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 667.)
182	17838	Japan ...	*Karvanishi H-97-1 ("Mavis") (Photo).* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 694.)
183	17844	Japan ...	*Clipped Wing Mitsubishi Zero (Photo).* (Flight, Vol. 44, No. 1,826, 23/12/43, p. 685.)
184	17918	Japan ...	*Design Details of Aichi 99 Dive Bomber.* (Aviation, Vol. 42, No. 10, October, 1943, pp. 178-179.)
185	18121	Japan ...	*Kawanishi H-02 Flying Boat (Photo).* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 722.)
			Military Types of Aircraft (France).
186	17622	France ...	*Bloch So. 161 Large Transport.* (Inter. Avia., No. 889-890, 16/10/43, p. 19.)
187	17623	France ...	*Mauboussin M. 400 Small Transport (Copy of DH 89).* (Inter. Avia., No. 889-890, 16/10/43, p. 20.)
			Military Types of Aircraft (Switzerland).
188	17329	Switzerland ...	*The Farner W.F. 12 Two-Seater Trainer (Cirrus Engines, Shaft Drive, Tricycle Undercarriage).* (Flight, Vol. 44, No. 1,824, 9/12/43, p. 647.)
189	18317	Switzerland ...	*A Swiss Fighter C-36.* (Flight, Vol. 44, No. 1,827, 30/12/43, p. 733.)
			Military Types of Aircraft (Sweden).
190	17455	Sweden ...	*New Swedish Aircraft.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 35.)
191	17648	Sweden ...	*J-22 Fighter (Silhouette).* (Inter. Avia., No. 878, 29/7/43, Frontispiece.)
192	18236	Sweden ...	*Svenska S. 17 Reconnaissance Plane.* (Inter. Avia., No. 881, 19/8/43, pp. 1-7.)
			Gliders and Gliding.
193	16457	U.S.A. ...	*Waco CG-4A Powered Glider.* (Inter. Avia., No. 891-892, 30/10/43, pp. 12-13.)

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194	17289	U.S.A. ...	*Glider Amphibian—LRA-1 (Photo).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 631.)
195	17324	Germany ...	*The Gotha 242 Twin-Boom Glider (Photo).* (Flight, Vol. 44, No. 1,824, 9/12/43, p. 642.)
196	17475	U.S.A. ...	*Waco Hadrian I Transport Glider.* (Inter. Avia., Vol. —, No. 884-885, 14/9/43, p. 17.)
197	17571	G.B.	*Jettisoning Weight—Effect on the Gliding Characteristics of Aircraft.* (P. F. Ashwood and J. M. N. Willis, Flight, Vol. 44, No. 1,825, 16/12/43, pp. 668-669.)
198	17621	Germany ...	*Gotha Go. 244 Powered Glider.* (Inter. Avia., No. 889-890, 16/10/43, p. 19.)
199	17837	G.B.	*New Modified Hotspur Glider (Photo).* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 694.)
200	17852	G.B.	*Maximum Gliding Distance of an Aircraft Produced by Jettisoning Load in a Forced Landing.* (T. B. A. Boughton, Flight, Vol. 44, No. 1,826, 23/12/43, p. 706.)
201	18254	Germany ...	*Jachtmann's 55-Hour Gliding Record.* (A. Juhre, Luftwelt, Vol. 10, No. 21, 1/11/43, p. 427.)
			Troop Transport and Ambulance.
202	17485	G.B.	*Air Ambulances.* (Inter. Avia., No. 884-885, 14/9/43, pp. 29-30.)
203	17610	U.S.A. ...	*Douglas C-74 Large Transport (200,000 lb.).* (Inter. Avia., No. 889-890, 16/10/43, p. 11.)
204	17613	U.S.A. ...	*Lockheed C-69 "Constellation" Transport.* (Inter. Avia., No. 889-890, 16/10/43, p. 11.)
205	17633	U.S.A. ...	*Fairchild S-82 Transport.* (Inter. Avia., No. 878, 29/7/43, p. 10.)
206	17634	U.S.A. ...	*Waco C-62 Transport.* (Inter. Avia., No. 878, 29/7/43, p. 11.)
207	17635	U.S.A. ...	*Curtiss C-76 "Caravan" Transport.* (Inter. Avia., No. 878, 29/7/43, p. 11.)
208	17644	U.S.A. ...	*Office of War Information Report on Air Transport.* (Inter. Avia., No. 878, 29/7/43, pp. 17-18.)
209	17809	U.S.A. ...	*Seven Types of Plane now in Service with Air Transport Command.* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 30.)
			Carriers and Fleet Air Arm.
210	17448	G.B.	*Fleet Air Arm Aircraft.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 32.)
211	17564	U.S.A. ...	*Civil Liability of Aircraft Carriers Under the Canadian Law.* (B. V. Richardson, Air Law Review, Vol. 12, No. 4, October, 1941, pp. 345-355.)
212	17626	U.S.A. ...	*New American Aircraft Carriers.* (Inter. Avia., No. 889-890, 16/10/43, p. 21.)
213	17815	U.S.A. ...	*The M-1—Largest of the Navy's Non-Rigid Airships (Photo).* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 46.)
214	18247	U.S.A. ...	*New American Aircraft Carriers.* (Inter. Avia., No. 881, 19/8/43, pp. 15-16.)

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215	18285	G.B.	1943—*The Decisive Year at Sea (Use of Carriers, Amphibian Vehicles, etc.).* (Engineer, Vol. 177, No. 4,591, 7/1/44, pp. 2-6.)
			A.R.P. and A.A.
216	17713	U.S.A. ...	*New Carrier Current Air Raid Warning Device.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 323-324.)
217	17773	U.S.A. ...	*Guns Against Aircraft—Organization and Function of the Army's A.A. Command.* (J. A. Green, Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, pp. 549-551.)
218	18251	Germany ...	*Equipment of Military Rescue Squads for Dealing with Civilian Air Raid Casualties.* (K. Scheurmann, Luftwelt, Vol. 10, No. 21, 1/11/43, pp. 410-413.)
219	18252	Germany ...	*Hitler Youth Doing A.R.P. Work.* (Luftwelt, Vol. 10, No. 21, 1/11/43, pp. 414-421.)
			Servicing and Maintenance.
220	17327	G.B.	*Tyre Changing (Rapid Removal).* (Flight, Vol. 44, No. 1,824, 9/12/43, pp. 643-644.)
221	17412	U.S.A. ...	*The Spokane Army Air Depot for Servicing and Repairing Combat Aircraft.* (A. F. Speeth, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 49-50.)
222	17423	Canada ...	*Production by Repair—Salvaging Damaged Aircraft.* (J. I. Waddington, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 82-84, 106.)
223	17426	Canada ...	*Organization of Large Scale Aircraft Repair and Overhaul.* (Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 116-120.)
			AERODYNAMICS AND HYDRODYNAMICS.
			General Aerodynamics.
224	17498	Switzerland ...	*New Aerodynamics Reports of the Zurich Technical High School (List).* (Inter. Avia., No. 888, 6/10/43, pp. 23-24.)
225	17799	France ...	*Some Considerations on the Diminution of Resistance at Supersonic Speed by the Chilowsky Process.* (D. Riabouchinsky, Comptes Rendus, Vol. 208, No. 26, 26/6/39, pp. 2037-2040.)
226	18129	Germany ...	*The Theory of Two Dimensional Gas Waves of Large Amplitude.* (H. Pfriem, Z.V.D.I., Vol. 86, No. 27-28, 11/7/42, p. 436.)
227	18235	Germany ...	*Theoretical Introduction to Gas Dynamics (Book Review).* (R. Sauer, Schiff und Werft, Vol. 44-24, No. Heft. 21-22, November, 1943, p. 313.)
228	18486	U.S.A. ...	*Induced Drag of a Twisted Wing.* (H. W. Sibert, Journal of Aeronautical Science, Vol. 10, No. 2, Feb., 1943, pp. 71-72.)
			Wind Tunnels.
229	17490	U.S.A. ...	*Wright Field High Altitude Wind Tunnel.* (Inter. Avia., No. 888, 6/10/43, p. 12.)

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230	17800	France ...	*High Speed Wind Tunnels and Their Application to Ballistic Research.* (E. Huguenard, La Technique Aeronautique, Vol. 15, No. 37, 15/11/27, pp. 346-355, and No. 38, 15/12/24, pp. 378-392.)
231	17911	U.S.A. ...	*Fundamentals of Wind Tunnel Control.* (R. R. Longwell, Aviation, Vol. 42, No. 10, October, 1943, pp. 162-163, 354-355.)
232	17930	U.S.A. ...	*Class-Room Wind Tunnel.* (Aviation, Vol. 42, No. 10, October, 1943, p. 253.)
233	18485	U.S.A. ...	*On the Design of the Contraction Cone for a Wind Tunnel.* (H. S. Tsien, Journal of Aeronautical Science, Vol. 10, No. 2, Feb., 1943, pp. 68-70.)

General Hydrodynamics.

234	17358	G.B.	*Experimental Fluid Dynamics Applied to Engineering Practice.* (G. A. Hawkins, Mechanical World, Vol. 114, No. 2,968, 19/11/43, pp. 579-582.)
235	17372	G.B.	*Experimental Fluid Dynamics Applied to Engineering Practice—III (Fluid Flow in Pipes, Wind Action on Buildings and Tidal Flow, Supersonic Wind Tunnels).* (G. A. Hawkins, Mechanical World, Vol. 114, No. 2,970, 3/12/43, pp. 658-661.)
236	17525	U.S.A. ...	*Use of Bentonite for Studying Fluid Flow.* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 278-279.)
237	18130	Germany ...	*The Formation of Drops at Nozzles and the Disintegration of Fluid Jets.* (W. Ohnesorge, Z.V.D.I., Vol. 81, No. 16, 17/4/37, pp. 465-466.)
238	18335	G.B.	*Pipe Line Calculations for Industrial Water Supply.* (J. V. Brittain, Mechanical World, Vol. 114, No. 2,973, 24/12/43, pp. 732-733.)
239	18480	——	*List of References on the Disintegration of Fluid Jets Falling Under the Action of Gravity.* (R.T.P. Bibliography No. 93, Jan., 1944.)

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Civil Aircraft Types.

240	17287	G.B.	*Boeing 314A Civil Flying Boat (Photo).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 630.)
241	17404	U.S.A. ...	*A History of Curtiss Commercial Aircraft.* (F. D. Walker, Curtiss Fly Leaf, Vol. 26, No. 1, March-April, 1943, pp. 8-10, 30.)
242	17469	U.S.A. ...	*New 24-Passenger Douglas Planned.* (American Aviation, Vol. 7, No. 10, 15/10/43, p. 17.)
243	17578	U.S.A. ...	*The World's Largest Flying Boat—the 70-Ton Martin Mars (Photos).* (Flight, Vol. 44, No. 1,825, 16/12/43, pp. 656-660.)
244	17998	U.S.A. ...	*The Hammond Aeroplane (Winner of Dept. of Commerce Safety Competition in 1934).* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 117.)

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245	18032	U.S.A.	... *Flight Trainer which can be Built by Pre-Flight Students.* (Civil Aeronautics Journal, Vol. 4, No. 11, 15/11/43, pp. 150-151.)
246	18106	America	... *Avro York—Makeshift British Air Liner.* (American Aviation, Vol. 7, No. 13, 1/12/43, p. 17.)
247	18239	U.S.A.	... *Cessna "Loadmaster" Cargo Aeroplane.* (Inter. Avia., No. 881, 19/8/43, p. 10.)
248	18424	U.S.A.	... *Bristol Transport Aircraft (Historical Review).* (Aeroplane, Vol. 66, No. 1,702, 7/1/44, pp. 12-15.)
			Civil Aviation and Air Cargo.
249	17227	U.S.A.	... *Air Cargo: How Army Experience Will Benefit Post-War Air Transportation.* (O. P. Echols, S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 17-19, 34-36.)
250	17307	G.B. ...	... *Railways and Air Transport.* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, p. 666.)
251	17425	Canada	... *Canada in Post-War Aviation.* (T. Wayling, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 94-96.)
252	17542	U.S.A.	... *What is a Feeder Airline?* (J. H. Frederick and W. J. Hudson, Journal of Air Law and Commerce, Vol. 13, No. 1, January, 1942, pp. 54-60.)
253	17808	U.S.A.	... *New York Port Authority Starts Planning for Trans-Ocean Traffic.* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 26.)
254	17818	U.S.A.	... *Requirements of a Local Air Transport System (Abstract).* (E. P. Warner, American Aviation, Vol. 7, No. 12, 15/11/43, p. 70.)
255	17835	G.B. ...	... *The Case for the Established Air Lines.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 692.)
256	17922	U.S.A.	... *Air Transport Charts Routes to New Horizons.* (J. Parker Van Zandt, Aviation, Vol. 42, No. 10, October, 1943, pp. 198-200, 305-310.)
257	17964	U.S.A.	... *Survey of U.S. Overseas Mail by the C.A.B. Research and Analysis Division (Seaborne Mail Considered as Base Cargo for Air Service).* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, pp. 127-128.)
258	17986	U.S.A.	... *Airline Accident Statistics, 1938-June, 1943.* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, pp. 139-142.)
259	18031	U.S.A.	... *New Devices for Air Traffic Control.* (W. A. M. Burden, Civil Aeronautics Journal, Vol. 4, No. 11, 15/11/43, p. 149.)
260	18120	G.B. ...	... *Commonwealth Post-War Aviation Plans.* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, p. 720.)
261	18199	U.S.A.	... *Engineering of Power Control and Altitude Selection in Airline Operation.* (R. D. Speas, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-10.)

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262	18248	G.B.	*S.B.A.C. Memorandum on Civil Aviation.* (Inter. Avia., No. 881, 19/8/43, pp. 18-20.)
263	18310	G.B.	*No Great Expectations (the Future of Air Transport and a Consideration of the Problems Involved).* (Flight, Vol. 44, No. 1,829, 30/12/43, pp. 720-721.)
264	18323	G.B.	*Organisation of New Swedish Air Line (S.I.L.A.).* (The Aeroplane, Vol. 65, No. 1,701, 31/12/43, p. 753.)
265	18324	G.B.	*U.K.-Australia Air Route.* (The Aeroplane, Vol. 65, No. 1,701, 31/12/43, p. 752.)
266	18366	U.S.A. ...	*Economic Significance to Passenger Traffic of Central City Landings.* (C. E. McCollum, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 66-70.
267	18474	Switzerland ...	*Civil Aviation via Polar Region.* (Inter. Avia., No. 891-892, 30/10/43, pp. 31-32.)
268	18473	Australia ...	*Australian Civil Aviation Plans.* (Inter. Avia., No. 891-892, 30/10/43, pp. 30-31.)

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269	17221	G.B.	*Direct Hydraulic System (Maintaining Sustained Pressure Without an Accumulator).* (Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 519-522.)
270	17225	G.B.	*Hydraulic Valve Actuation.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 527.)
271	17276	U.S.A. ...	*Aircraft Oil Systems—High Altitude Problems.* (H. E. Moerman, S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 394-396, 407.)
272	17284	U.S.A. ...	*Converting To-day's Military Aeroplane Transports for Post-War Passenger and Cargo Use (Excerpts from Paper).* (W. J. Forster, S.A.E., Vol. 51, No. 11, Nov., 1943, pp. 29, 49-50.)
273	17290	G.B.	*Design of Post-War Aircraft.* (Roy Chadwick, Aeroplane, Vol. 65, No. 1,697, 3/12/43, p. 631.)
274	17421	Canada ...	*Conservation by Redesign—Simplifying Aircraft Standards.* (K. Edgar, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 78, 100.)
275	17461	U.S.A. ...	*Flying Wheel (Design by J. A. Philpott).* (American Aviation, Vol. 7, No. 11, 1/11/43, p. 44.)
276	17489	U.S.A. ...	*Deyster-Hubbs Cargo Plane Project (Exchangeable Fuselage).* (Inter. Avia., No. 888, 6/10/43, p. 12.)
277	17810	U.S.A. ...	*Aircraft Interior Decorating Analysed.* (E. J. Foley, American Aviation, Vol. 7, No. 12, 15/11/43, p. 80.)
278	17811	U.S.A. ...	*Four Basic Types of Post-War Plane Envisaged.* (G. B. Dobben, American Aviation, Vol. 7, No. 12, 15/11/43, pp. 31, 48-50.)
279	17909	U.S.A. ...	*Design Approach for Long Range Aircraft—Part II (Development of Flying Boats for Distance Runs).* (R. V. Boname, Aviation, Vol. 42, No. 10, October, 1943, pp. 153-155, 326-341.)

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280	17910	U.S.A. ...	*Super-Aluminium Alloys for Aircraft Structures—Part III (Study of Corrosion Resistance of New Artificially Aged Aluminium Alloys).* (K. R. Jackman, Aviation, Vol. 42, No. 10, October, 1943, pp. 156-161, 284-293.)
281	17984	U.S.A. ...	*Data on Plastics for Aircraft Use (New A.N.C. 17 Booklet).* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, p. 133.)
282	17985	U.S.A. ...	*Plastic Parts on Aeroplanes (Chart).* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, p. 133.)
283	18001	U.S.A. ...	*Design Approach for Long Range Aircraft—Part I (Wing and Power Loadings and Other Aerodynamic Characteristics).* (R. V. Boname, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 139-143, 296-297.)
284	18007	U.S.A. ...	*Super-Aluminium Alloys for Aircraft Structures—Part II.* (K. R. Jackman, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 168-177, 302-303.)
285	18196	U.S.A. ...	*Perspective Illustration as Applied to Aircraft Design and Production.* (A. M. Fitzpatrick, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronauticai Sciences, 27-29/1/43, pp. 1-13.)
286	18220	U.S.A. ...	*Tension Joints in Aircraft Structures (Riveted Joints Analysis: Effect of Holes on the Tension Efficiency of 24S.T. Aluminium Alloy, etc.).* (C. H. Holleman, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-7.)
287	18221	U.S.A. ...	*Progress in Aircraft Plywood, 1941-1942.* (T. D. Perry, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. —.)
288	18483	U.S.A. ...	*Space Limitations and Optimum Conditions in Aircraft Spring Design.* (R. H. Carter, Journal of the Aeronautical Sciences, Vol. 10, No. 2, Feb., 1943, pp. 51-57.)
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289	17283	U.S.A. ...	*Philosophy of Flight Testing (Excerpts from Paper).* (J. Kendrick, S.A.E., Vol. 51, No. 11, Nov., 1943, pp. 29, 47-48.)
290	17522	U.S.A. ...	*New Electronically-Controlled Precision Testing Apparatus for Aircraft Propeller Governors.* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 275-276.)
291	17756	U.S.A. ...	*Automatic Temperature Recording Control System (for Use in Flight Test Work, etc.).* (M. E. Moore, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 809-815.)
292	18088	U.S.A. ...	*Flight Testing with a Propeller Thrust Meter (Abstract of S.A.E. Paper).* (G. W. Brady, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, pp. 33-34.)

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293	18216	U.S.A. ...	*Experimental Investigations in Aircraft Dynamics (Experimental Vibration Studies).* (W. B. Bergen, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-31.)
294	18217	U.S.A. ...	*Effects of Yielding and Perforations on Wing Tension Surfaces.* (R. K. Koegler and A. Schnitt, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-44.)
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295	17303	G.B.	*Post-War Air Racing (including Review of Earlier Contests).* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, pp. 672-673.)
296	17331	G.B.	*Atlantic Record.* (Flight, Vol. 44, No. 1,824, 9/12/43, p. 649.)
297	17416	Canada ...	*Best Speed for Climb.* (L. Sloan, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 58-59.)
298	17495	Germany ...	*Lilienthal German Aviation Prizes (Recipients).* (Inter. Avia., No. 888, 6/10/43, p. 16.)
299	17900	G.B.	*The Lateral Stability of Aeroplanes (Derivative Calculation by the Lotz System).* (H. L. Price, Aircraft Engineering, Vol. 15, No. 178, December, 1943, pp. 345-351.)
300	17923	U.S.A. ...	*Cruise Control for Flying Efficiency. Part IV—Cruising Power Chart.* (R. D. Speas and others, Aviation, Vol. 42, No. 10, October, 1943, pp. 203-206, 350-351.)
301	18010	U.S.A. ...	*Cruise Control for Flying Efficiency. Part III—Power Control (Latest Methods of Cutting Engine Fuel Costs Through the Use of Meters, Charts and Calculators).* (R. D. Speas and others, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 204-207, 310-312.)
302	18067	U.S.A. ...	*A New Method of Longitudinal Control for Aircraft by Use of an Adjustable Angle of Attack Balance.* (R. J. White, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-26.)
303	18215	U.S.A. ...	*Aerodynamic Considerations of Rotors in Hovering and Vertical Climb Conditions.* (C. H. Kaman, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-19.)
304	18316	G.B.	*Assisted Take-off.* (Flight, Vol. 44, No. 1,827, 30/12/43, pp. 732-733.)
305	18364	U.S.A. ...	*Roof Landing Problems.* (J. M. Miller, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 37-50.)
306	18373	U.S.A. ...	*Frequency and Vibration Problems of Rotors.* (R. H. Prewitt and R. A. Wagnor, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 137-157.)
307	18374	U.S.A. ...	*Autogyro Rotor Longitudinal Stability.* (A. Klemin and others, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 158-183.)

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308	18426	G.B.	*The Speed Spiral (the Economic Aspects of Speed in Air Transport).* (Aeroplane, Vol. 66, No. 1,702, 7/1/44, pp. 18-19.)
309	18481	U.S.A. ...	*Three-Dimensional Wing Flutter Analysis.* (A. H. Flax, Journal of the Aeronautical Sciences, Vol. 10, No. 2, February, 1943, pp. 41-47.)
310	18482	U.S.A. ...	*Rate of Climb Calculations.* (G. Otten, Journal of the Aeronautical Sciences, Vol. 10, No. 2, Feb., 1943, pp. 48-50.)
			Patents and Devices.
311	17419	Canada ...	*Radium Aids Night Flying.* (Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 70, 142.)
312	17462	U.S.A. ...	*Fragile Cargo Jettisoned in Special Wooden Boxes.* (American Aviation, Vol. 7, No. 10, 15/10/43, p. 78.)
313	17768	G.B.	*Paper Petrol Tanks.* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, pp. 658-659.)
314	17982	U.S.A. ...	*Flight Communications Service (Warning Pilots on Flying Conditions).* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, p. 129.)
315	17988	Canada ...	*Aids to Aeronautical Navigation (Latest Developments in Pilot Aids).* (Commercial Aviation, Vol. 5, No. 9, Sept., 1943, p. 42.)
316	18012	U.S.A. ...	*American Airlines Turn and Bank Fixture (Allows Quick Installation and Removal).* (Aviation, Vol. 42, No. 9, Sept., 1943, p. 217.)
317	18417	U.S.A. ...	*Ice Tyre for Aeroplanes (Sharp Steel Lugs Grip Ice).* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, p. 37.)
318	18418	U.S.A. ...	*Electronic Control for De-Icer System.* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 37, 62.)
319	18459	U.S.A. ...	*Caterpillar Track Landing Gear (Dowty).* (Inter. Avia., No. 891-892, 30/10/43, pp. 14-15.)
320	18468	France ...	*Pressure Cabin of Improved Wood (Lyons Arsenal).* (Inter. Avia., No. 891-892, 30/10/43, p. 20.)
			Flying Boats.
321	17295	G.B.	*The Future of the Flying Boat (Saunders Roe Scheme).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, pp. 637-638.)
322	17297	G.B.	*Elements of Flying Boat Design (Review of Types).* (Aeroplane, Vol. 65, No. 1,697, 3/12/43, pp. 642-645.)
323	17566	G.B.	*Will There be a Place for the Flying Boat? (A Critical Review of the Saro Report.)* (Flight, Vol. 44, No. 1,825, 16/12/43, pp. 661-662.)
324	18275	G.B.	*The Case for the Flying Boat.* (H. Knowler, Flight, Vol. 45, No. 1,828, 6/1/44, p. 15.)
325	18465	France ...	*Latecoere 631 Giant Flying Boat—I.* (Inter. Avia., No. 891-892, 30/10/43, pp. 19 and I.)
			Rotary Wing Aircraft.
326	17459	U.S.A. ...	*Piasecki's One-Man Helicopter.* (American Aviation, Vol. 7, No. 11, 1/11/43, p. 31.)

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327	17466	U.S.A. ...	*Platt-Le Page Twin-Rotored Helicopter* (*Artist's Version*). (American Aviation, Vol. 7, No. 10, 15/10/43, p. 64.)
328	17568	G.B. ...	*More Rotating Wings* (*Recent U.S. Helicopter Designs*). (Flight, Vol. 44, No. 1,625, 16/12/43, p. 664.)
329	17638	U.S.A.	*Nash-Kelvinator Helicopter Projects.* (Inter. Avia., No. 878, 29/7/43, pp. 11-12.)
330	18213	U.S.A.	*Control of Helicopter Rotor.* (E. B. Wilford, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-7.)
331	18214	U.S.A.	*A Method of Rapid Estimation of Helicopter Performance.* (Q. Wald, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-15.)
332	18360	U.S.A.	*Army Experiences with Rotary Aircraft.* (E. S. Nichols, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 3-11.)
333	18361	U.S.A.	*Rotorcraft Patrols for Protection of Merchant Shipping* (*Proposals by Kellett Autogyro Corp.*). (Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 12-16.)
334	18362	U.S.A.	*Rotorcraft Drive Systems.* (J. M. Schuckers, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 17-27.)
335	18363	U.S.A.	*A New Parameter of Lifting Rotors.* (A. M. Young, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 28-36.)
336	18365	U.S.A.	*Commercial and Military Uses of Rotating Wing Aircraft.* (I. Sikorsky, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 51-65.)
337	18367	U.S.A.	*Mechanical Design in Rotary Aircraft.* (J. S. Pecker, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 71-84.)
338	18368	U.S.A.	*Gyroplanes and Combination Types.* (E. Burke Wilford, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 85-94.)
339	18369	U.S.A.	*Treatment of Performance on Rotors with Special Attention to Centre Cut-Outs.* (P. H. Stanley, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1943, pp. 95-106.)
340	18370	U.S.A.	*Stress Analysis of Rotor Blades.* (H. J. Mulvey, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 107-114.)

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341	18372	U.S.A.	... *Rotor Controls.* (H. S. Campbell, Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 126-136.)
342	18466	France	... *Breguet G. 10A Helicopter.* (Inter. Avia., No. 891-892, 30/10/43, p. 20.)

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343	17277	U.S.A.	... *Notes on the Selection and Installation of Aircraft Propellers.* (T. B. Rhines, S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 397-407.)
344	17826	G.B.	... ... *Pressure Distribution on Propeller Blades (Abstract).* (J. L. Taylor, Mechanical World, Vol. 114, No. 2,971, 10/12/43, p. 681.)
345	17898	G.B.	... ... *Airscrew Blade Twist Effects.* (J. Lockwood Taylor, Aircraft Engineering, Vol. 15, No. 178, December, 1943, p. 340.)
346	17968	G.B.	... ... *Hollow Metal Airscrew Blade (Patent).* (Aircraft Production, Vol. 6, No. 63, January, 1944, p. 51.)
347	18087	U.S.A.	... *Propeller of Metal and Hard Rubber.* (Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 166.)
348	18205	U.S.A.	... *A Tabular Method of Propeller Blade Stress Analysis.* (J. Stuart, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-14.)
349	18207	U.S.A.	... *Problems of Routine Propeller Balancing.* (J. T. Farran, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-9.)
351	18233	Germany	... *Modern Developments of Tugboats with Special Reference to the Kort-Nozzle Propellers.* (W. Hinterthan, Schiff und Werft, Vol. 44-24, No. Heft 21-22, November, 1943, pp. 302-305.)
352	18484	U.S.A.	... *Dynamic of Constant Speed Propellers.* (H. K. Weiss, Journal of Aeronautical Sciences, Vol. 10, No. 2, Feb., 1943, pp. 58-67, 70.)

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353	17191	G.B.	... ... *Aerodrome Abstracts (Vol. 11, No. 5, Abstract Nos. 78-100).* (Journal of the Inst. of Civil Engineers, Vol. 21, No. 1, Nov., 1943, pp. 1-8.)
354	17386	G.B.	... ... *Experimental Soil Mechanics—Part V.* (Russell Allin, Civil Engineering, Vol. 38, No. 448, Oct., 1943, pp. 214-215.)
355	17424	Canada	... *Mobile Control Truck Directs Aircraft Landing.* (Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 90-92.)
356	17438	G.B.	... ... *Experimental Soil Mechanics—Part IV.* (Russell Allin, Civil Engineering, Vol. 38, No. 447, Sept., 1943, pp. 190-191.)

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357	17440	France ...	*The Rate of Freezing in Soil and its Dependence on the Thickness of the Snow Layer* (Abstract). (H. Geslin, Civil Engineering, Vol. 38, No. 447, Sept., 1943, p. 208.)
358	17447	G.B.	*Idlewild Airport.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 31.)
359	17543	U.S.A. ...	*Working Memorandum on Inter-Municipal Airport Co-operation.* (E. F. Jarz, Journal of Air Law and Commerce, Vol. 13, No. 1, January, 1942, pp. 61-63.)
360	17544	U.S.A. ...	*Illinois Model Airport Zoning Act—A Bill.* (Journal of Air Law and Commerce, Vol. 13, No. 1, January, 1942, pp. 64-69.)
361	17545	U.S.A. ...	*Regulation Requiring Notice or Construction or Alteration of Structures on or Near Civil Airways.* (Journal of Air Law and Commerce, Vol. 13, No. 1, January, 1942, pp. 72-75.)
362	17549	U.S.A. ...	*Airport Legal Developments of Interest to Municipalities—1941.* (J. M. Hunter and L. H. Ulman, Journal of Air Law and Commerce, Vol. 13, No. 2, April, 1942, pp. 116-139.)
363	17555	——	*Constitutionality of Zoning Laws Enacted to Protect Airport Approaches.* (Journal of Air Law and Commerce, Vol. 13, No. 3, July, 1942, pp. 272-277.)
364	17577	G.B.	*Municipal Airport Requirements.* (W. R. Dainty, Flight, Vol. 44, No. 1,825, 16/12/43, p. 678.)
365	17819	U.S.A. ...	*Effect of Aircraft Operating Characteristics on Airport Runway Patterns (Triangular Airport Pattern).* (J. C. Leslie and others, American Aviation, Vol. 7, No. 12, 15/11/43, p. 72.)
366	17836	G.B.	*Suggestion for an International Airports Corporation.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 692.)
367	17853	G.B.	*Wartime Aerodrome Construction in South Africa —The Importance of Turf Grasses.* (Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, pp. 4-6.)
368	17854	G.B.	*Surfacing Types for Aerodromes.* (Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, pp. 8-9.)
369	17855	G.B.	*Airport Planning in the U.S.A.* (Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, p. 9.)
370	17856	G.B.	*The Technics of Ground Facilities. 7—Equipment and Mechanisation.* (J. P. Chaplin, Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, pp. 10-12.)
371	17858	G.B.	*Croydon's Proposed Airport Development.* (Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, p. 13.)
372	17859	G.B.	*Airport Dust Laying.* (Parks and Sports Grounds, Vol. 9, No. 3, Dec., 1943, p. 12.)
373	18113	America ...	*C.A.A. Develops New "Outer-Marker" Beacons to Aid "Lost" Night Fliers.* (American Aviation, Vol. 7, No. 13, 1/12/43, p. 36.)

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374	18122	G.B.	*Airports for London.* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, pp. 724-725.)
375	18224	G.B.	*Method of Testing the Bearing Capacity of Soils and Runways as Used by the Central Public Works Department, India.* (J. J. Bryan, Journal of Inst. Civil Engineers, Vol. 21, No. 2, December, 1943, pp. 121-122.)
376	18225	G.B.	*Aerodrome Abstracts (Vol. 2, No. 6, Abstract Nos. 101-120).* (Journal of Inst. Civil Engineers, Vol. 21, No. 2, December, 1943.)
377	18471	G.B.	*Proposed Expansion of Croydon Airport.* (Inter. Avia., No. 891-892, 30/10/43, p. 29.)

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378	17464	U.S.A. ...	*American Airlines New Tyre Changer.* (American Aviation, Vol. 7, No. 10, 15/10/43, p. 70.)
379	17465	U.S.A. ...	*The Importance of Maintenance in Post-War Civil Aviation.* (E. J. Foley, American Aviation, Vol. 7, No. 10, 15/10/43, pp. 70-71.)
380	17484	Sweden ...	*A.B.A. Rotor Balancer for Gyroscopes and Supercharger Impellers.* (Inter. Avia., No. 884-885, 14/9/43, pp. 24-25 and I.)
381	17506	U.S.A. ...	*Collapsible Aircraft Service Stand.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 254.)
382	17816	U.S.A. ...	*New Wheel Tester (Capable of Testing Landing Loads up to 40,000 Pounds per Wheel).* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 48.)
383	17925	U.S.A. ...	*Engineering in Airline Maintenance (Maintenance Equipment Employed by Trans-Canada Airlines).* (Aviation, Vol. 42, No. 10, October, 1943, pp. 213-226, 282-283.)
384	18011	U.S.A. ...	*Continuous Overhaul of P.A.A. "Clippers" (Highly Efficient System of Progressive Overhaul).* (D. Baker, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 211-212, 297-302.)

ENGINES AND ACCESSORIES.

Named Types.

385	17098	G.B.	*Details of the B.M.W. 801 as Used for Fighter Aircraft.* (Flight, Vol. 44, No. 1,823, 2/12/43, p. 621.)
386	17451	G.B.	*German Aero Engines (M.A.P. Examinations).* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 34.)
387	17832	G.B.	*Packard Merlins.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 688.)
388	17868	Germany ...	*D.B.-601 Liquid-Cooled Aircraft Engine (M.A.P. Reports).* (M. W. Bourdon, Automotive Industries, Vol. 89, No. 8, 15/10/43, pp. 28-31, 62.)
389	18079	U.S.A. ...	*Lycoming "Packaged Power" Unit (6-Cylinder Horizontally Opposed Aircraft Engine).* (Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 23.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
390	18116	America	...	*Wright 2,200 h.p. Cyclone 18.* (American Aviation, Vol. 7, No. 13, 1/12/43, p. 78.)
391	18128	G.B. ...	...	*Napier Sabre Aero Engine.* (M.A.P. Report, 13/1/44.)
392	18273	G.B. ...	...	*The New Cyclone 18 Engine (2,200 h.p.).* (Flight, Vol. 45, No. 1,828, 6/1/44, p. 17.)
393	18469	France	..	*Gnome Rhone 28R (4-Bank 28-Cylinder Radial Pressure Cooled, 3,750 h.p. at 20,000 feet).* (Inter. Avia., No. 891-892, 30/10/43, p. 21.)

General Design and Installation.

394	17304	G.B. ...	...	*German Cowlings (M.A.P. Reports).* (Aeroplane, Vol. 65, No. 1,698, 10/12/43, pp. 682-683.)
395	17518	U.S.A.	...	*Reducing Diesel Noise by Correct Design.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 270.)
396	17573	G.B. ...	...	*Engine Cowlings—Examples of German Practice (M.A.P. Reports).* (Flight, Vol. 44, No. 1,823, 16/12/43, pp. 672-675.)
397	17908	U.S.A.	...	*The Case for the Integral Power Plant—Part II.* (S. A. Moss, Aviation, Vol. 42, No. 10, October, 1943, pp. 143-180, 276-282.)
398	17972	Germany	...	*German Ingenuity—Quick-Release Fasteners for Cowlings and Covers.* (Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 37-39.)
399	17976	Germany	...	*Anodic Films—An Examination of Aluminium Alloy Parts from German Aircraft.* (Aircraft Production, Vol. 6, No. 63, January, 1944, p. 48.)
400	18003	U.S.A.	...	*The Case for the Integral Power Plant—Part I.* (Sanford A. Moss, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 150-151, 321-326.)
401	18206	U.S.A.	...	*Temperature Effects on Turbine Supercharger Installations.* (P. Colman, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-22.)
402	18355	U.S.A.	...	*Aircraft Engine Inlet and Exhaust Porting.* (V. C. Young, S.A.E. Preprints, 10-14/1/44.)

Accessories (Cylinders, Pistons, etc.).

403	17248	G.B. ...	...	*Steering Gears—Some Notes on Their Performance Characteristics.* (H. N. Charles, Automobile Engineer, Vol. 33, No. 443, Nov., 1943, pp. 501-505.)
404	17249	G.B. ...	...	*New Filtering Method.* (Automobile Engineer, Vol. 33, No. 443, Nov., 1943, p. 1205.)
405	17263	U.S.A.	...	*Application of Electronic Control.* (E. H. Vedder, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-6.)
406	17280	U.S.A.	...	*S.A.E. Standardizing Piston and Ring Nomenclature.* (S.A.E., Vol. 51, No. 11, Nov., 1943, p. 39.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
407	17343	G.B. ...	... *Eccentric Gear Mechanisms for Variable Angular Velocity.* (Machinery, Vol. 63, No. 1,624, 25/11/43, pp. 603-604.)
408	17377	G.B. ...	... *Eccentric Gear Mechanisms for Variable Angular Velocity.* (Machinery, Vol. 63, No. 1,623, 1/12/43, pp. 577-581.)
409	17382	G.B. ...	... *Chromium Plating for Engine Rings and Liners.* (Mechanical World, Vol. 114, No. 2,966, 5/11/43, pp. 544-545.)
410	17401	U.S.A.	... *Carburettor Air Filter.* (Wayne Cannon, Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 120-127.)
411	17512	U.S.A.	... *New Materials being Tested for Brake Cylinder Pistons (Tin-Plated Cast Iron Pistons, Plastic with Hardened Steel Inserts, etc.).* (Scientific American, Vol. 169, No. 6, December, 1943, p. 261.)
412	17692	G.B. ...	... *Metallurgical Investigations of Some Light Alloy Pistons from German Aircraft.* (C. Wilson, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 33-36.)
413	17760	U.S.A.	... *Investigation of Large Diesel Engine Wrist Pins, Pistons, and Crankcase Explosions.* (F. E. Feast, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 847-852.)
414	17876	U.S.A.	... *Simmonds-Hobson Automatic Engine Control (Mark 46).* (Automotive Industries, Vol. 89, No. 8, 15/10/43, p. 104.)
415	17962	G.B. ...	... *Splined Shafts (Patent).* (Aircraft Production, Vol. 6, No. 63, January, 1944, p. 51.)
416	18049	G.B. ...	... *Torque Reversal in Gear Drives.* (W. A. Tuplin, Engineering, Vol. 156, No. 4,067, 24/12/43, p. 503.)
417	18403	G.B. ...	... *The Effect of Chemical Surface Treatments on the Scuffing of Gears.* (H. D. Mansion, I.A.E. Report, Vol. —, No. 1,943-15, December, 1943, pp. 1-16.)
418	18467	France	... *Homocinetic Coupling for Tandem Engines up to 2,000 h.p. Developed at the Lyons Arsenal.* (Inter. Avia., No. 891-892, 30/10/43, p. 20.)
419	18479	—— ...	... *List of References on Packings.* (R.T.P. Bibliography No. 92, Dec., 1943.)

Pumps, Boilers, Turbines, etc.

420	17164	G.B. ...	... *Hydrogen in Boilers.* (G. Preece, Engineer, Vol. 176, No. 4,586, 3/12/43, p. 449.)
421	17243	U.S.A.	... *The Elliott-Lysholm Blower.* (A. Lysholm, Automobile Engineer, Vol. 33, No. 433, Nov., 1943, pp. 483-486.)
422	17264	U.S.A.	... *Description and Performance of Boilers 12 and 14, Trenton Channel Plant, and Boilers 9 and 10, Marysville Plant, Detroit Edison Co.* (R. J. Brandon and W. A. Carter, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-6.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
423	17265	U.S.A. ...	*Furnace Design and Development of Steam Generating Units Burning Central Illinois Coal.* (J. R. Michele, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-7.)
424	17433	G.B. ...	*The Efficiencies of Gas Turbines.* (C. B. M. Dale, Engineering, Vol. 156, No. 4,065, 10/12/43, p. 474.)
425	17445	G.B. ...	*Water Circulators in Steam Boilers.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 28.)
426	17588	G.B. ...	*Corrosion in Boilers.* (C. P. Parry, Engineer, Vol. 176, No. 4,588, 17/12/43, p. 487.)
427	17728	G.B. ...	*High Dewpoint Temperatures in Boiler Flue Cases.* (W. F. Harlow, Engineering, Vol. 156, No. 4,066, 17/12/43, pp. 497-500.)
428	17729	G.B. ...	*The Efficiencies of Gas Turbines.* (Engineering, Vol. 156, No. 4,066, 17/12/43, p. 494.)
429	17761	U.S.A. ...	*Proposed Expressions for Roots' Supercharger Design and Efficiencies.* (F. A. Hiersch, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 853-855.)
430	17941	G.B. ...	*The Suppression of the Evaporation of Mercury from Diffusion Pumps.* (C. S. Bull and O. Klemperer, Journal of Scientific Instruments, Vol. 20, No. 11, November, 1943, pp. 179-181.)
431	18178	—— ...	*List of References on Wind Power Generating Plant.* (R.T.P. Bibliography No. 91, Nov., 1943.)
432	18230	G.B. ...	*An Oil Engine Symposium.* (The Engineer, Vol. 176, No. 4,590, 31/12/43, p. 525.)
433	18234	Germany ...	100 *Years of Turbine Construction by the Escher-Wyss Company.* (O. Tapp, Schiff und Werft, Vol. 44-24, No. Heft. 21-22, November, 1943, pp. 305-311.)
434	18288	G.B. ...	*Oil Engine Outputs.* (P. Jackson, Engineer, Vol. 177, No. 4,591, 7/1/44, pp. 12-13.)
435	18303	G.B. ...	*Efficiencies of Combustion Turbines.* (P. Jackson, Engineering, Vol. 156, No. 4,068, 31/12/43, p. 534.)

Aero Engine Performance and Phenomena.

436	17179	G.B. ...	450 *b.h.p. from* $1\frac{1}{2}$ *Litres (a Highly Supercharged Two-Stroke Providing Exhaust Turbine Drive).* (J. Lowley, Motor, Vol. 83, No. 2,152, 24/3/43.)
437	17286	Germany ...	*Bearing Friction and Boundary Layer Phenomena.* (S. Kierskalt (Translation in hand, Rolls Royce), Z.V.D.I., Vol. 7, No. 21-22, 29/5/43, pp. 321-324.)
438	17317	G.B. ...	*Acceleration Forces in High Speed Engines.* (J. Stoney, Machinery, Vol. 63, No. 1,625, 2/12/43, pp. 637-638.)
439	17656	U.S.A. ...	*Anti-Rust Insurance for Aeroplane Engines.* (A. M. Hoffman, Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, pp. 655-656.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
440	17709	U.S.A. ...	*Effect of Altitude on Knock Rating.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, p. 289.)
			Jet Propulsion.
441	17532	Switzerland ...	*The Development of Jet or Rocket Propulsion (R.T.P. Translation No. 1,330).* (J. Stemmer, Journal of the Royal Aeron. Society, Vol. 47, No. 396, December, 1943, pp. 407-428.)
442	17850	Switzerland ...	*Jet Propulsion (R.T.P. Translation).* (J. Stemmer, Flight, Vol. 44, No. 1,826, 23/12/43, pp. 700-702.)
			Thermodynamics.
443	17103	U.S.A. ...	*Measurement of High Temperatures in High Velocity Gas Streams (Exhaust Gas).* (W. J. King, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, p. 421.)
444	17980	U.S.A. ...	*Aircraft Power Plant Fire Protection (C.A.A. Flight Engineering Report No. 34).* (Civil Aeronautics Journal, Vol. 4, No. 10, 15/10/43, p. 128.)
445	18005	U.S.A. ...	*Effect of Spinner and Cowl Entrance Combinations on Engine Cooling.* (J. Jonas, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 159, 286-287.)
446	18256	U.S.A. ...	*Second Law of Thermodynamics for Changes of State and Quantity of Working Substance with Particular Reference to Steam Engines.* (G. Zerkowitz, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-5.)
447	18412	U.S.A. ...	*Hydraulic Control of Aircraft Engine Temperature.* (W. A. Ray, Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 25, 58-60.)
			Testing and Research.
448	17657	U.S.A. ...	*Laboratory Equipment for Testing Engines at Different Altitudes and Temperatures.* (Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, p. 630.)
449	17791	G.B.	*The Chemical Background for Engine Research (Book Review, Edited by R. E. Burk and O. Grummitt).* (Nature, Vol. 152, No. 3,867, 11/12/43, p. 675.)
450	17973	G.B.	*Magnetic Filters for Engine Testing.* (Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 40-41.)
451	18048	G.B.	*Cracks in Wheel Seats within the Hubs of Wheels (Effect of Press Fit; Photo-Elastic Analysis) (With Discussion).* (G. W. C. Hirst, Engineering, Vol. 156, No. 4,067, 24/12/43, pp. 501-502, 512.)
452	18059	U.S.A. ...	*Laboratory Investigation of Altitude Vapour Formation in Aircraft Fuel System (Abstract of S.A.E. Paper).* (W. H. Curtis, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 35.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Cold Starting and Fuel Injection.
453	17427	G.B. ...	... *The Indicating of Engine Fuel Injection Systems.* (N. Kendall, Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 461-464.)
454	17935	U.S.A.	... *New Standard Starting Fluid (Prevents Ice-Clogging of the Fuel Lines at 70° Below Zero).* (National Petroleum News, Vol. 35, No. 45, 10/11/43, p. 32.)
455	18274	G.B. ...	... *Warming Up (Heating Aircraft Engines in Cold Weather: Portable Electric Heating Apparatus).* (A. G. Arend, Flight, Vol. 45, No. 1,828, 6/1/44, p. 18.)
			Servicing and Maintenance.
456	17230	G.B. ...	... *Desirability of Uniformity in Nut Tightening.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 532.)
457	17924	U.S.A.	... *Holley Carburettor Operating and Servicing.* (E. E. Thorp, Aviation, Vol. 42, No. 10, October, 1943, pp. 209-211, 293-298.)
458	18448	U.S.A.	... *Adequate and Uniform Tightening of Aircraft Engine Connecting Rod Bolts (Obtained by Stretching Them Beyond Elastic Limit).* (Machinist, Vol. 87, No. 26, 16/10/43, p. 105.)
			FUELS.
			General.
459	17099	G.B. ...	... *Education and the Petroleum Industry (with Discussion).* (Professor V. C. Illing, Journal of the Institute of Petroleum, Vol. 29, No. 238, October, 1943, pp. 259-283.)
460	17266	U.S.A.	... *Fuels and Fuel Research in Great Britain During the War.* (W. C. Schroeder, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-5.)
461	17282	U.S.A.	... *Post-War Fuels and Lubricants (Excerpts from Papers).* (C. M. Larson, S.A.E., Vol. 51, No. 11, Nov., 1943, p. 29.)
462	17333	U.S.A.	... *Petroleum—Past, Present and Future.* (P. K. Frolich, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1131-1138.)
463	17748	U.S.A.	... *Fuels and Fuel Research in Great Britain During the War.* (W. C. Schroeder, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 881-884, 892.)
464	17769	G.B. ...	... *Petroleum as an Offensive Weapon (Sea of Blazing Fire as an Anti-Invasion Measure).* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, p. 658.)
465	18258	U.S.A.	... *New Combustion Control Methods for all Standard Fuels.* (A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-4.)
			High Octane Fuels.
466	17332	U.S.A.	... *Triptane—New Aviation Gasoline of 140 Anti-Knock Rating.* (National Petroleum News, Vol. 35, No. 39, 29/9/43, p. 32.)

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467	17336	U.S.A. ...	*Catalytic Desulfurisation of Gasolines by Cobalt Molybdate Process.* (A. C. Byrnes and others, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1160-1167.)
468	17508	U.S.A. ...	*Triptane—New Super Gas.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 255.)
469	17575	G.B.	*Super-Fuel now Available (Triptane).* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 677.)
470	17771	G.B.	*German Aviation Fuel Octane Ratings (Examination of Fuel Recovered from German Engines—91.5 Octane).* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, p. 662.)
471	17931	U.S.A. ...	*Three Principal Catalytic Cracking Processes (Review of Papers Presented at the American Petroleum Institute)—Houdry Fixed Bed Process, Thermofor Catalytic Cracking and Fluid Catalyst Cracking.* (National Petroleum News, Vol. 35, No. 45, 10/11/43, pp. 6-7, 48-49.)
472	17936	U.S.A. ...	100 *Octane Output Quadrupled Since* 1942 *(Review of U.S. Output, etc.).* (National Petroleum News, Vol. 35, No. 44, 3/11/43, pp. 22-23.)
473	17937	U.S.A. ...	*New Super Aviation Fuel Concentrate—Dynafuel (Made Entirely from Petroleum).* (National Petroleum News, Vol. 35, No. 44, 3/11/43, p. 27.)
474	18281	U.S.A. ...	*New Super Aviation Fuel—Dynafuel.* (Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 21, 10/11/43, p. 1808.)
			"Coal Gasoline" and Paraffins.
475	17186	U.S.A. ...	*Viscosity of n-Paraffin Solutions (Viscosity and Structural Relations of Linear Polymers).* (A. R. Kemp and H. Peters, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1108-1112.)
476	17335	U.S.A. ...	*Recent Developments in Nitroparaffins.* (H. B. Hass, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1146-1152.)
477	17807	U.S.A. ...	*Plane Using "Coal Gasoline" Completes Experimental Flight.* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 26.)
			Solid and Powdered Fuels.
478	17100	U.S.A. ...	*Utilising Pulverised Coal in the Metallurgical Industries.* (C. F. Herington, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 393-400.)
479	18257	U.S.A. ...	*Performance of Pulverised Coal-Fired Boilers on Philadelphia Electric Company System.* (J. H. Harlow, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-8.)
			Gaseous Fuels.
480	17255	U.S.A. ...	*American Production of Gas Producers for China.* (National Petroleum News, Vol. 35, No. 42, 20/10/43, pp. 17-18.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
481	17767	G.B.	...	*Germany's "Revolution on Wheels" (Conversion to Producer Gas).* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, pp. 650-652.)
				Oils and Lubricants.
482	17087	G.B.	...	*The Solubility of Air in Oils.* (H. R. Mills, I.A.E. Report, Vol. —, No. 1,943-13, September, 1943, pp. 1-19.)
483	17185	U.S.A.	...	*Stability of Furnace Oil.* (A. B. Hersberger and others, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1104-1107.)
484	17223	G.B.	...	*A New Lubricant to Reduce Wear in Low-Speed Oil Engines.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 522.)
485	17224	G.B.	...	*Some Points in Connection with Modern Oils and Greases.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 523-527.)
486	17232	G.B.	...	*Lubrication—Use of Dry Film for High Temperatures.* (Automobile Engineer, Vol. 35, No. 444, December, 1943, p. 537.)
487	17500	G.B.	...	*Lubrication.* (Science Library Bibliographical Series, July-September, 1943.)
488	17655	U.S.A.	...	*Plastic Petroleum for Lubricating the Magazines of Marine A.A. Guns.* (Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, pp. 653-654.)
489	17660	U.S.A.	...	*New Quenching Oil Aids Production of Low Alloy Steels.* (Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, p. 576.)
490	17766	G.B.	...	*Time for a Special Offensive Against German Oil? (Review of Raid Damage on German Oil Plant.* (Petroleum Times, Vol. 47, No. 1,209, 27/11/43, pp. 646, 656.)
491	17839	G.B.	...	*Filtration of Oil.* (T. C. Worth, Aeroplane, Vol. 65, No. 1,699, 17/12/43, pp. 695-697.)
492	17933	U.S.A.	...	*Lubricating Grease Requirements for Modern Military Aircraft (Abstract).* (S. C. Britton and E. R. Erwin, National Petroleum News, Vol. 35, No. 45, 10/11/43, pp. 28-29.)
493	18072	U.S.A.	...	*Fixing and Determining Oil in Feed Water and Boiler Water.* (C. A. Noll and W. J. Tomlinson, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 629-632.)
494	18342	G.B.	...	*The Lubrication of Driving Chains (Applying Lubricant According to Type of Chain Construction).* (E. V. Paterson, Mechanical World, Engineering Record, Vol. 114, No. 2,972, 17/12/43, pp. 695-698, 701.)
495	18354	U.S.A.	...	*A Method for Testing Cutting Oils.* (H. L. Moir and others, S.A.E. Preprints, 10-14/1/44, pp. 1-6.)
496	18497	G.B.	...	*Potential Service Performance of Lubricating Oils.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 777.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			THEORY OF ELASTICITY (STRESSES, CREEP, BENDING STRENGTH, Etc.).
497	17108	U.S.A. ...	*The Holding Power and Hydraulic Tightness of Expanded Tube Joints: Analysis of the Stress and Deformation.* (J. N. Goodier and G. J. Schoessow, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 489-496.)
498	17112	U.S.A. ...	*Testing of Volute Springs.* (B. Sterne, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 523-532.)
499	17113	U.S.A. ...	*Volute Spring Formulas (with Discussion).* (C. J. Holland, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 533-541.)
500	17114	U.S.A. ...	*Notes on Secondary Stresses in Volute Springs (with Discussion).* (H. O. Fuchs, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 543-551.)
501	17190	G.B.	*Creep and Shrinkage in Plain Reinforced and Pre-Stressed Concrete. A General Method of Calculation.* (A. Dawson Ross, Journal of the Inst. of Civil Engineers, Vol. 21, No. 1, Nov., 1943, pp. 38-57.)
502	17267	U.S.A. ...	*The Stresses in Cemented Lap Joints.* (M. Goland and E. Reissner, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-11.)
503	17269	U.S.A. ...	*Relations Between the Notched Beam Impact Test and the Static Tension Test.* (C. W. MacGregor and J. C. Fishes, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-7.)
504	17357	G.B.	*Disposition of Spring Section (Rectangular Section Compression Rings).* (Mechanical World, Vol 114, No. 2,967, 12/11/43, pp. 574-577.)
505	17378	G.B.	*Improving the Fatigue Strength of Threaded Parts.* (Mechanical World, Vol. 114, No. 2,966, 5/11/43, pp. 523-526.)
506	17428	G.B.	*Young's Modulus for Carbon Brushes.* (Y. F. Soper, Engineering, Vol. 156, No. 4,065, 10/12/43, p. 464.)
507	17651	U.S.A. ...	*A General Stress-Strain-Time Formula.* (P. G. Nutting, Journal of the Franklin Institute, Vol. 235, No. 5, May, 1943, pp. 513-524.)
508	17679	U.S.A. ...	*On the Forced Vibrations of Non-Linear Springs.* (C. R. Wylie, Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, pp. 273-284.)
509	17899	G.B.	*Rectangular Tubes Under Torque.* (J. Ratzersdorfer, Aircraft Engineering, Vol. 15, No. 178, December, 1943, pp. 341-344.)
510	18054	G.B.	*The Simple Trussed Beam.* (J. J. O'Donovan, Engineering, Vol. 156, No. 4,067, 24/12/43, p. 514.)

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511	18195	U.S.A.	...	*Significance of the Secant and Tangent Moduli of Elasticity in Structural Design.* (D. S. Welford, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-36.)
512	18218	U.S.A.	...	*Bending Strength in the Plastic Range.* (F. P. Cozzone, Preprints of the 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-47.)
513	18219	U.S.A.	...	*Buckling of Aluminium Alloy Columns and Plates.* (H. L. Langhaar, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-13.)
514	18222	G.B.	...	*A Lattice Analogy for the Solution of Stress Problems (Two-Dimensional Stress Problems Involving Elastic Materials).* (D. McHenry, Journal of Inst. of Civil Engineers, Vol. 21, No. 2, December, 1943, pp. 59-82.)
515	18223	G.B.	...	*The Plastic Theories for the Ultimate Strength of Reinforced Concrete Beams.* (R. H. Evans, Journal of Inst. of Civil Engineers, Vol. 21, No. 2, December, 1943, pp. 98-121.)
516	18231	G.B.	...	*American Impact Tests on Railway Bridges.* (The Engineer, Vol. 176, No. 4,590, 31/12/43, pp. 522-523.)
517	18264	U.S.A.	...	*Behaviour of Synthetic Phenolic Resin Adhesives in Plywood Under Alternating Stresses.* (A. G. H. Dietz and H. Grinsfelder, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-15.)
518	18265	U.S.A.	...	*The Effects of Web Deformation on the Torsion of I-Beams.* (J. N. Goodier and M. V. Barton, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-6.)
519	18266	U.S.A.	...	*Fatigue Studies on Urea Assembly Adhesives.* (A. G. H. Dietz and H. Grinsfelder, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-12.)
520	18357	U.S.A.	...	*Description of Stress/Strain Curves by Three Parameters.* (W. Ramberg and W. R. Osgood, N.A.C.A. Tech. Note, July-August, 1943.)

MATERIALS.

A. Properties.

Al. and Mg. Alloys.

522	17117	G.B.	...	*Hardness of Aluminium Sheet.* (R. L. Templin, Metal Industry, Vol. 63, No. 23, 3/12/43, p. 357.)
523	17123	G.B.	...	*Effects of Precipitation Treatment of Binary Magnesium-Aluminium Alloys (Concluded).* (F. A. Fox and E. Lardner, Metal Industry, Vol. 63, No. 23, 3/12/43, pp. 363-364.)

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324	17126	G.B. ...	...	*The Constitution of Magnesium-Manganese-Zinc-Aluminium Alloys in the Range 0-5 per cent. Magnesium, 0-2 per cent. Manganese and 0-8 per cent. Zinc. IV—The Equilibrium Diagram Below 400°C.* (A. T. Little and others, Journal of Institute of Metals, Vol. 69, No. 11, Nov., 1943, pp. 467-484.)
325	17128	G.B. ...	...	*The Constitution of Magnesium-Manganese-Zinc-Aluminium Alloys in the Range 0-5 per cent. Magnesium, 0-2 per cent. Manganese, 0-8 per per cent. Zinc. III—The 500°C. and 400°C. Isothermals.* (A. T. Little and others, Journal of Institute of Metals, Vol. 69, No. 10, Oct., 1943, pp. 423-440.)
326	17131	G.B. ...	...	*An Investigation of the Effects of Precipitation Treatment of Binary Magnesium/Aluminium Alloys.* (F. A. Fox and E. Lardner, Journal of Institute of Metals, Vol. 69, No. 9, September, 1943, pp. 373-396.)
327	17133	G.B. ...	...	*The Constitution of Magnesium-Manganese-Zinc-Aluminium Alloys in the Range 0-5 per cent. Magnesium, 0-2 per cent. Manganese, 0-8 per cent. Zinc. II—The Composition of the $MnAl_6$ Phase.* (G. V. Raynor and W. Hume-Rothery, Journal of Institute of Metals, Vol. 69, No. 9, September, 1943, pp. 415-421.)
328	17197	U.S.A.	...	*Effects of Minor Alloying Elements on Aluminium Casting Alloys. Part II—Aluminium-Silicon Alloys.* (W. Bonsack, A.S.T.M. Bulletin, No. 124, Oct., 1943, pp. 41-51.)
329	17212	G.B. ...	...	*Aluminium Castings Poured in Cores.* (Metal Industry, Vol. 63, No. 24, 10/12/43, p. 374.)
330	17505	U.S.A.	...	*Magnesium Development (New Magnesium Alloys. Fabricating Methods, etc.).* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 253-254.)
331	17586	G.B. ...	...	*Production of Aluminium and Magnesium in the U.S.A.* (Metal Industry, Vol. 63, No. 25, 17/12/43, p. 397.)
332	17703	G.B. ...	...	*Aluminium Electrolyte Condensers (Abstract).* (P. Robinson and J. Burnham, Metallurgia, Vol. 29, No. 169, Nov., 1943, p. 36.)
333	17877	G.B. ...	...	*Thermal Stresses in Structural Members of Duralumin, A.Z.M. Magnesium Alloy and Mild Steel.* (L. P. Dudley, Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 573-576.)
334	17879	G.B. ...	...	*Aluminium Industry in Australia.* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 577-578.)
335	17884	G.B. ...	...	*Metallurgical Investigations of Some Light Alloy Pistons from German Aircraft (M.A.P. Reports I).* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 589-593.)
336	17886	G.B. ...	...	*Chemical Reactivity of Aluminium and Magnesium in Practice.* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 598-613.)

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537	17887	G.B.	*Magnesium Alloys in Aircraft (Danger of Replacing Aluminium Alloy Sheet Gauge-for-Gauge by Magnesium Alloy Sheet).* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 571-572, 614.)
538	17889	G.B.	*Aluminium and Magnesium in the Electrical Industries (Uses of Light Metal for Cable Sheathing and Conductors).* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 621-622.)
539	17897	G.B.	*Magnesium from Dolomite.* (Metal Industry, Vol. 63, No. 26, 24/12/43, p. 414.)
540	18061	G.B.	*Secondary Aluminium in War Production.* (J. J. Bowman, Metal Industry, Vol. 43, No. 27, 31/12/43, pp. 420-421.)
541	18148	U.S.A. ...	*Magnesium Alloys—Compositions, Properties and Designations of American Commercial Alloys (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 704.)
542	18153	U.S.A. ...	*Etching Characteristics of Constituents in Aluminium Alloys (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 712.)
543	18201	U.S.A. ...	*Elevated Temperature Ageing of 24S Aluminium Alloy.* (P. P. Mozley, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-10.)
545	18387	G.B.	*Plastic Working of Magnesium Alloy Sheet.* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 74.)
			Iron and Steel.
546	17135	U.S.A. ...	*Basic Electric Steel Practice (Symposium of Papers).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 941-944.)
547	17143	U.S.A. ...	*Steel Manufacture (Review of Papers Given at the National Metal Congress).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 958-962.)
548	17159	G.B.	*A New Method of Sorting Steel.* (R. J. Bryan and J. Bridle, Engineer, Vol. 176, No. 4,586, 3/12/43, pp. 442-444.)
549	17215	G.B.	*Lead-Coated Steel Sheets.* (Metal Industry, Vol. 63, No. 24, 10/12/43, p. 380.)
550	17275	U.S.A. ...	*Special Addition Agent Steels (Ferro Alloys Containing Boron for Increasing Hardenability and Saving Critical Alloying Elements).* (R. B. Schenck, S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 385-393.)
551	17321	G.B.	*New Methods for Sheet Metal Work (Book Review).* (W. Cookson, Journal of the Institution of Production Engineers, Vol. 22, No. 11, Nov., 1943, pp. 99-100.)

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552	17590	G.B.	...	*New Method of Sorting Steel.* (Engineer, Vol. 176, No. 4,588, 17/12/43, pp. 489-490.)
553	17659	U.S.A.	...	*New Uses for Bessemer Steel—Steel Landing Mat for Constructing Runways.* (Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, pp. 623-624.)
554	17685	G.B.	...	*The Weldability of Cast Iron—I.* (T. J. Palmer, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 3-6, 25.)
555	17689	G.B.	...	*High Silicon Acid Resisting Cast Iron.* (J. E. Hurst, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 21-25.)
556	17690	G.B.	...	*Leaded-Manganese-Molybdenum Steel.* (T. Swinden, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 26-30.)
557	17691	G.B.	...	*The Structure and Segregation of Two Ingots of Ingot Iron, One Containing Lead.* (L. Northcott and D. McLean, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 30-32.)
558	17725	G.B.	...	*Research on Cast Iron (Report on British Cast Iron Research Association).* (Engineering, Vol. 156, No. 4,066, 17/12/43, pp. 486-487.)
559	17727	G.B.	...	*Organised Research on Steel (Review of the Work of the Joint Research Committees, 1924-1943, of the Iron and Steel Institute and the British Iron and Steel Federation).* (Engineering, Vol. 156, No. 4,066, 17/12/43, p. 492.)
560	17873	U.S.A.	...	*N.E. Steels Replacing Alloy Steels for Many Purposes.* (W. C. Hirch, Automotive Industries, Vol. 89, No. 8, 15/10/43, p. 54.)
561	18077	U.S.A.	...	*How Do You Specify Steel by Analysis or Performance?* (G. Van Dyke, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, pp. 18-19, 78-81.)
562	18138	U.S.A.	...	*A.I.S.I. Standard Steel Compositions (Table) (Revised February 1, 1943).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 666.)
563	18139	U.S.A.	...	*List of National Emergency Alloy Steels (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 672.)
564	18140	U.S.A.	...	*Specific Effects of Alloys in Steel (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 674.)
565	18143	U.S.A.	...	*Properties of Important Wrought Chromium-Iron Alloys (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 688.)
566	18144	U.S.A.	...	*Properties of Important Wrought Chromium-Nickel-Iron Alloys (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 690.)
567	18145	U.S.A.	...	*Hardness Traverses of Amola Steels (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 694.)
568	18149	U.S.A.	...	*Constituents of 24S Alloy—Etching Characteristics.* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 706.)

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569	18157	U.S.A. ...	*S-Curve for S.A.E. 4,140 Steel.* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 734.)
570	18158	U.S.A. ...	*Iron, Iron Carbide Equilibrium Diagram.* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 736.)
571	18162	U.S.A. ...	*S-Curve for 0.89 per cent. Carbon Steel.* (Metal Progress, No. 4, Vol. 44, October, 1943, p. 772.
572	18167	U.S.A. ...	*Izod Toughness vs. Tensile Strength of Heat Treated Steels (Data Sheet).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 798.)
573	18180	U.S.A. ...	*Hardness Conversion Chart for Steels (Data Sheet).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 852.)
574	18182	U.S.A. ...	*Hydrogen in Iron (Abstract).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 572.)
575	18194	U.S.A. ...	*Martensite and Superstructures.* (A. M. Portevin, Metal Progress, Vol. 44, No. 4, Oct., 1943, pp. 645-646.)
576	18229	G.B.	*American Electric-Furnace Steel.* (The Engineer, Vol. 176, No. 4,590, 31/12/43, p. 525.)
577	18385	G.B.	*Orientation in Low-Carbon Deep-Drawing Steel.* (J. K. Stanley, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 67-73.)
			Non-Ferrous Metals.
578	17115	G.B.	*Zinc Die-Casting Alloys—Mechanical Properties at Sub-Normal Temperatures.* (S. W. K. Morgan and B. D. Darrah, Metal Industry, Vol. 63, No. 23, 3/12/43, pp. 354-356.)
579	17120	G.B.	*Tin Economy in Babbit Bearings.* (Metal Industry, Vol. 63, No. 23, 3/12/43, p. 360.)
580	17124	U.S.A. ...	*Properties of Cast Red Brass as Affected by the Ambient Atmosphere During Melting.* (H. B. Gardner and others, Journal of Research of the National Bureau of Standards, Vol. 31, No. 3, Sept., 1943, pp. 125-140.)
581	17130	G.B.	*Correspondence on Paper: "The Expansion of a Bismuth-Lead-Tin-Cadmium Alloy on Cooling After Solidification."* (C. H. Desch, Journal of Institute of Metals, Vol. 69, No. 10, Oct., 1943, p. 465.)
582	17132	G.B.	*A Thermodynamical Theory of Restoration Phenomena in the Ageing of Copper-Aluminium Alloys.* (Prof. S. T. Konobeevski, Journal of Institute of Metals, Vol. 69, No. 9, September, 1943, pp. 397-413.)
583	17140	U.S.A. ...	*Non-Ferrous Metals (Review of Papers Given at the National Metal Congress).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 951-954.)
584	17258	U.S.A. ...	*Notch-Toughness Tests of Carbon-Molybdenum Pipe Material.* (W. F. Kinney and others, A.S.M.E. Preprints, Vol. —, 29th Nov.-3rd Dec., 1943, pp. 1-9.)
585	17511	U.S.A. ...	*New Heat-Resistant Alloy (Replacing Large Part of Nickel and Chromium with Silicon and Manganese).* (Scientific American, Vol. 169, No. 6, December, 1943, p. 261.)

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586	17693	G.B.	*Electrolytic Production of Cobalt—a Review of Recent Work.* (Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 37-41.)
587	17694	G.B.	*Palladium: Its History and Properties.* (L. Sanderson, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 41-42.)
588	17697	G.B.	*Effect of Sulphur and Antimony on Steam or Valve Bronze Casting.* (A. J. Smith and J. W. Bolton, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 44-45.)
589	17698	G.B.	*Nickel in Bronze.* (A. H. Hesse and J. L. Basil, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 47-48.)
590	17881	G.B.	*Toxicology of Beryllium.* (Light Metals, Vol. 6, No. 71, Dec., 1943, p. 581.)
591	18135	U.S.A. ...	*Representative Micrographs of Copper-Base Alloys.* (Metal Progress, Vol. 44, No. 4, October, 1943, pp. 636-639.)
592	18145	U.S.A. ...	*Aluminium Bronzes Commonly Used in Aircraft (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 701.)
593	18147	U.S.A. ...	*Physical Constants of Purest Zinc (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 702.)
594	18150	U.S.A. ...	*Standard Brass and Bronze Alloys (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 708.)
595	18151	U.S.A. ...	*Engineering Properties of Monel (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 710.)
596	18152	U.S.A. ...	*Engineering Properties of "A" Nickel (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 711.)
597	18154	U.S.A. ...	*Hardness Conversion for Cartridge Brass (70 per cent. Copper, 30 per cent. Zinc) (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 714.)
598	18155	U.S.A. ...	*Copper and its Alloys in Wrought Form (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 720.)
599	18187	U.S.A. ...	*Cartridge Brass Defects.* (C. O. Windrath, Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 643.)
600	18386	G.B.	*Lead-Coated Sheets (as Substitute for Cadmium and Zinc Coatings).* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 74.)
601	18476	——	*List of References on Tin and Lead Base Bearing Metals (Babbitts).* (R.T.P. Bibliography No. 89, Sept., 1943.)
			Plastics and Resin.
602	17181	U.S.A. ...	*Ketones as Solvents for Vinyl Resins.* (R. W. Quarles, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1033-1043.)
603	17199	G.B.	*High Shock-Resisting Mouldings ("Rockite" 3,932).* (Plastics, Vol. 7, No. 79, Dec., 1943, pp. 529-530.)
604	17200	G.B.	*Production of High Polymers for Electrical and Chemical Resistance (Polythene).* (Plastics, Vol. 7 No. 79, Dec., 1943, pp. 531-532.)

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605	17201	Germany ...	*The Shaping of Plates and Foils of Polyvinyl Chloride and Mixed Polymers.* (Z.V.D.I., 1943, Vol. 87, p. 346.) (Plastics, Vol. 7, No. 79, Dec., 1943, p. 540.)
606	17202	France ...	*Electrical Classification of Plastics* (*Revue Generale de l'Electricite, Dec.*, 1942). (Plastics, Vol. 7, No. 79, Dec., 1943, p. 541.)
607	17205	G.B.	*The Future of Plastics—I.* (M. D. Curwen, Plastics, Vol. 7, No. 79, Dec., 1943, pp. 543-548.)
608	17206	G.B.	*Metallizing Plastics (Contd.).* (E. E. Halls, Plastics, Vol. 7, No. 79, Dec., 1943, pp. 549-561.)
609	17207	Germany ...	*Serviceability of Plastic Gears* (*Static and Dynamic Strength and Wear Resistance of Representative Types of Laminated Plastics and Wood for Gears*)—*Part I.* (Kunststoffe, 1942, Vol. 32, pp. 263-270.) (Opitz and others, Plastics, Vol. 7, No. 79, Dec., 1943, pp. 562-577.)
610	17208	G.B.	*Resinoids and Other Plastics as Film Formers. XXII—High Elastic Deformations of Polymers.* (B. J. Brajnikaff, Plastics, Vol. 7, No. 79, Dec., 1943, pp. 572-578.)
611	17209	G.B.	*New Adhesive* (*Cascophen LT-67*). (Plastics, Vol. 7, No. 79, Dec., 1943, p. 542.)
612	17228	G.B.	*Paraldehyde—A Fluid Fuel Stretching Agent Employed in Switzerland.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 528.)
613	17236	G.B.	*Marvinol Elasto-Plastic.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 550.)
614	17245	G.B.	*Plastic Bodywork. Part III—Plywood Characteristics and the Moulded Plywood Body.* (W. Nichols, Automobile Engineer, Vol. 33, No. 433, Nov., 1943, pp. 493-498.)
615	17456	G.B.	*The Uses of Nylon.* (V. E. Yarsley, Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 44.)
616	17592	G.B.	*A Survey of Plastics—I (with Discussion).* (S. L. Smith, Engineer, Vol. 176, No. 4,588, 17/12/43, pp. 491-492, 481.)
617	17720	U.S.A. ...	*Plastic Pipe and Tubing. One Solution of Metal Shortage Problem.* (Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, p. 434.)
618	17730	G.B.	*Plastic Material for Dies.* (Engineering, Vol. 156, No. 4,066, 17/12/43, p. 488.)
619	17733	G.B.	*Polyvinyl Alcohol. Part I—Its Chemistry and Applications.* (I. Jones, British Plastics, Vol. 15, No. 175, December, 1943, pp. 380-384, 408.)
620	17734	G.B.	*Hand Grenade No. 69. Production and Manufacturing Methods of a Plastics Hand Grenade Reviewed.* (British Plastics, Vol. 15, No. 175, December, 1943, pp. 385-390.)
621	17735	G.B.	*A Survey of Plastics—Part I (from the Viewpoint of the Mechanical Engineer).* (S. Livingston Smith, British Plastics, Vol. 15, No. 175, December, 1943, pp. 391-394.)

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622	17737	G.B.	*A Material to Replace Mica—"Polectro."* (British Plastics, Vol. 15, No. 175, December, 1943, p. 420.)
623	17738	G.B.	*An Hygroscopic Plastics Packaging Method.* (British Plastics, Vol. 15, No. 175, December, 1943, p. 420.)
624	17739	G.B.	*"Alkathene"—A Polythene Plastics Material.* (British Plastics, Vol. 15, No. 175, December, 1943, pp. 417-428.)
625	17740	G.B.	*Plastics for Pumping Machinery.* (British Plastics, Vol. 15, No. 175, December, 1943, pp. 419-420.)
626	17742	G.B.	*Plastics Pellets for Gunnery Training.* (British Plastics, Vol. 15, No. 175, December, 1943, pp. 421-422.)
627	17864	G.B.	*A Survey of Plastics.* (S. L. Smith, The Engineer, Vol. 176, No. 4,589, 24/12/43, pp. 511-512.)
628	18028	G.B.	*Structural and Physical Properties of Plastics. Part II—Experimental.* (L. W. Turner, Chemistry and Industry, Vol. 62, No. 52, 25/12/43, pp. 492-495.)
629	18228	G.B.	*A Survey of Plastics. IV—Reinforced Plastics as Structural Materials.* (S. L. Smith, The Engineer, Vol. 176, No. 4,590, 31/12/43, pp. 529-531.)
630	18410	G.B.	*Science and Industry of Plastics (Book Review).* (R. S. Morrell, Nature, Vol. 152, No. 3,858, 9/10/43, p. 398.)
631	18489	G.B.	*Laminated Paper Plastic for Aircraft.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, pp. 758-759.)
			Rubber (Natural and Synthetic).
632	17125	U.S.A. ...	*Electrical and Mechanical Properties of the System Buna S-Gilsonite (Suitable for the Insulation of Communication Cables).* (A. H. Selker and others, Journal of Research of the National Bureau of Standards, Vol. 31, No. 3, Sept., 1943, pp. 141-161.)
633	17177	U.S.A. ...	*New Rubberlike Plastic Material "Compars" (Compounded Polyvinyl Alcohol Resin).* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 20, 25/10/43, p. 1770.)
634	17203	Germany ...	*Technical Qualities of Soft Rubber.* (Z.V.D.I., 1943, Vol. 87, p. 347.) (Roelig, Plastics, Vol. 7, No. 79, Dec., 1943, p. 542.)
635	17240	G.B.	*Rubber Roads.* (Automobile Engineer, Vol. 33, No. 433, Nov., 1943, p. 470.)
636	17381	G.B.	*Defects in Rubber Tyres—Use of Supersonics.* (Mechanical World, Vol. 114, No. 2,966, 4/11/43, p. 535.)
637	17444	G.B.	*Synthetic Rubber Linings—Use in Concrete Fuel Storage Tanks.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 28.)
638	17534	G.B.	*Elasticity of Rubber.* (H. P. Stevens, Chemistry and Industry, Vol. 62, No. 50, 11/12/43, p. 474.)

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639	17608	U.S.A. ...	*Marvinol Rubber Plastic (Vinyl Resin Derivative)* (Inter. Avia., No. 889-890, 16/10/43, p. 13.)
640	17718	U.S.A. ...	*Proposed Substitutes for Rubber (How to Assess Them).* (Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, pp. 406-409.)
641	17763	U.S.A. ...	*Fatigue Characteristics of Rubber.* (F. L. Yost, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 881-888.)
642	17867	U.S.A. ...	*How Good are Synthetic Rubber Tyres?* (E. L. Warner, Automotive Industries, Vol. 89, No. 8, 15/10/43, pp. 26-27, 76-80.)
643	17932	U.S.A. ...	*Synthetic Rubber Progress in the U.S.A.* (National Petroleum News, Vol. 35, No. 45, 10/11/43, pp. 10-11.)
644	17938	U.S.A. ...	*Synthetic Rubber Made in a Few Minutes (New Process).* (National Petroleum News, Vol. 35, No. 44, 3/11/43, p. 27.)
645	18004	U.S.A. ...	*New Guides to High Altitude Rubbers.* (H. J. Marx and S. S. Kagut, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 152-154, 288-293.)
646	18047	U.S.A. ...	*Five Commercial Types of Synthetic Rubber (Bulletin Issued by the U.S. Rubber Co.).* (Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, p. 325.)
647	18085	U.S.A. ...	*Compar—A New Rubber Substitute.* (Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 46.)
648	18086	U.S.A. ...	*Synthetic Rubber Progress Report.* (Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, p. 82.)
649	18278	U.S.A. ...	*The Field of Synthetic Rubber vs. Natural Rubber and the Plastics.* (E. P. Dinsmore, Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 21, 10/11/43, pp. 1798-1801.)
650	18299	G.B.	*Recent Developments in the Field of Olefinic Reactivity, Particularly in Relation to the Chemical Behaviour of Rubber, Drying Oils and Hydrocarbons (Abstract).* (E. H. Farmer, Chemistry and Industry, No. 1, 1/1/44, p. 6.)
651	18334	G.B.	*Guayule Rubber—Mechanical Equipment for its Production.* (Mechanical World, Vol. 114, No. 2,973, 24/12/43, pp. 730-731.)
			Wood and Synthetics.
652	17153	G.B.	*Timber Drying Kilns (Forest Products Research Laboratory, Leaflet No. 30).* (Engineering, Vol. 156, No. 4,064, 3/12/43, p. 450.)
653	17257	U.S.A. ...	*Glued Laminated Lumber Construction (with Bibliography).* (F. J. Hanrahan, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-9.)
654	17371	G.B.	*Balsa Wood in Industry.* (Mechanical World, Vol. 114, No. 2,970, 3/12/43, p. 657.)

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655	17441	G.B.	*The Seasoning of Timber—Use of Urea.* (Civil Engineering, Vol. 38, No. 447, Sept., 1943, p. 188.)
656	17753	U.S.A. ...	*Glued Laminated Lumber Construction (with Bibliography).* (F. J. Hanrahan, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 905-913.)
657	17758	U.S.A. ...	*Lignite—Influence of Storage Conditions Upon Size Degradation, Size Stability, and Friability.* (C. J. Eckhardt and C. W. Yates, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 829-836.)
658	18344	G.B.	*Physical Properties of Wood.* (Mechanical World Engineering Record, Vol. 114, No. 2,972, 17/12/43, pp. 702-703.)

Glass and Ceramics.

659	17178	U.S.A. ...	*Plastic and Glass Combination for Self-Sealing Tanks in War Planes.* (Industrial and Engineering Chemistry (News Edition), Vol. 21, No. 10, 25/10/43, p. 1770.)
660	17341	G.B.	*Glass for Precision Gauging.* (H. B. Hambleton, Machinery, Vol. 63, No. 1,624, 25/11/43, pp. 592-593.)
661	17366	G.B.	*The Processing of Glass in the Lamp and Radio Valve Industries.* (R. L. Breadner and C. H. Simms, Mechanical World, Vol. 114, No. 2,970, 3/12/43, pp. 639-641.)
662	17528	U.S.A. ...	*Glass Fibres Now Available in Seven Basic Types.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 281.)
663	17667	U.S.A. ...	*Parachute Flare Shades Woven of Glass Fibres.* (Journal of the Franklin Institute, Vol. 236, No. 1, July, 1943, p. 80.)
664	17710	U.S.A. ...	*Glass Fibres Used for Camouflage.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, p. 309.)
665	17721	U.S.A. ...	*Glass Jewels Speed Instrument Manufacture.* (Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, pp. 436-437.)
666	17824	G.B.	*The Processing of Glass in the Lamp and Radio Valve Industries—II.* (R. L. Breadner and C. H. Simms, Mechanical World, Vol. 114, No. 2,971, 10/12/43, pp. 686-689.)
667	17336	G.B.	*The Processing of Glass in the Lamp and Radio Valve Industries—IV.* (C. H. Simms and R. L. Breadner, Mechanical World, Vol. 114, No. 2,973, 24/12/43, pp. 734-735.)
668	18347	G.B.	*The Processing of Glass in the Lamp and Radio Valve Industries—III.* (R. L. Breadner and C. H. Simms, Mechanical World, Engineering Record, Vol. 114, No. 2,972, 17/12/43, pp. 714-716, 717.)

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			Silver and Diamonds
669	17127	G.B.	*The Constitution of Silver-Magnesium Alloys in the Region 0.40 Atomic per cent. Magnesium.* (K. W. Andrews and W. Hume Rothery, Journal of Institute of Metals, Vol. 69, No. 11, Nov., 1943, pp. 485-493.)
670	17149	G.B.	*Industrial Diamonds.* (D. F. Galloway, Engineering, Vol. 156, No. 4,064, 3/12/43, pp. 441-444.)
671	17229	G.B.	*Diamond Turning—Experimental Data on the Machining of Aluminium Alloys.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 531-532.)
672	17315	G.B.	*Uses of Sintered Silver.* (Machinery, Vol. 63, No. 1,625, 2/12/43, p. 634.)
673	17367	G.B.	*Low Temperature Brazing with Silver Alloys.* (A. J. T. Eyles, Mechanical World, Vol. 114, No. 2,970, 3/12/43, pp. 642-644.)
674	17375	G.B.	*Surface Finish with Diamond Tools.* (Machinery, Vol. 63, No. 1,623, 1/12/43, pp. 573-576.)
675	17430	G.B.	*Piston Turning with Diamond Tools.* (Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 466-468.)
676	17719	U.S.A. ...	*Recovery of Diamond Dust Used for Polishing Tungsten Carbide Dies.* (Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, p. 433.)
			Cement, Concrete.
677	17163	G.B.	*Cement in Peace and War.* (Engineer, Vol. 176, No. 4,586, 3/12/43, pp. 453-454.)
678	17337	U.S.A. ...	*Crystals from Portland Cement Hydration (an Electron Microscope Study).* (C. M. Sliepcevich and others, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1178-1187.)
679	17529	U.S.A. ...	*A New Photographic Lens Cement.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 283.)
680	18160	U.S.A. ...	*Properties of Refractory Materials, Except Fireclay (Table).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 746.)
			Paints, Varnish, Glazes, Inks.
681	17194	U.S.A. ...	*Discussion of Paper on Behaviour of Glazing Material Subjected to Explosion.* (T. R. Eilenberg and W. K. Jones, A.S.T.M. Bulletin, No. 124, Oct., 1943, pp. 15-17.)
682	17195	U.S.A. ...	*Comparison of Methods for Determining the Drying Rates of Varnishes.* (H. R. Moore, A.S.T.M. Bulletin, No. 124, Oct., 1943, pp. 19-29.)
683	17504	U.S.A. ...	*New Inks that will Stay on Metals and are Fluorescent.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 252.)
684	17732	G.B.	*Corona Suppression in High Voltage Machines Effected by Semi-Conducting Paint (Coronox).* (Engineering, Vol. 156, No. 4,066, 17/12/43, p. 488.)

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685	18029	G.B. ...	... *Progress in Paints and Painting (Abstract).* (V. G. Jolly, Chemistry and Industry, Vol. 62, No. 52, 25/12/43, pp. 495-496.)
686	18280	U.S.A.	... *Paint at War.* (Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 21, 10/11/43, p. 1808.)

Grease, Putty, Asphalt, Graphite.

687	17180	U.S.A.	... *Symposium of Papers on Solvents.* (Various authors, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1020-1077.)
688	17187	U.S.A.	... *Surface Consistency Characteristics of Asphalts.* (E. C. Knowles and F. C. McCoy, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1118-1122.)
689	17196	U.S.A.	... *A Method of Evaluating Performance in Service of Slow-Curing Asphalts.* (J. Zapata, A.S.T.M. Bulletin, No. 124, Oct., 1943, pp. 31-39.)
690	17668	U.S.A.	... *New Method of Waterproofing Many Kinds of Materials (Cloth, Paper, Ceramics, etc.).* (Journal of the Franklin Institute, Vol. 236, No. 1, July, 1943, pp. 109-110.)
691	17750	U.S.A.	... *Practical Cutting Fluid Recommendations (for Use with High Speed Steel Tools).* (C. W. Boston and others, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 889-892.)
692	17902	G.B. ...	... *Preventing Joints from Sticking (Use of Colloidal Graphite).* (Aircraft Engineering, Vol. 15, No. 178, December, 1943, p. 368.)
693	17934	U.S.A.	... *Lithium and Strontium, New Tools for the Grease Industry (Abstract).* (W. F. Luckenback, National Petroleum News, Vol. 35, No. 45, 10/11/43, p. 29.)
694	18282	Germany	... *Synthetic Products Used for Cutting Compounds (German Developments).* (Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 21, 10/11/43, p. 1814.)
695	18283	Germany	... *New Product Found for Hydrocarbon-Resistant Putties.* (Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 21, 10/11/43, p. 1814.)

General Properties of Materials (including Corrosion).

696	17166	G.B. ...	... *Coagulation of Colloids.* (E. K. Rideal, Nature, Vol. 152, No. 3,865, 27/11/43, p. 618.)
697	17168	G.B. ...	... *Molecular Weight of Native Cellulose.* (N. Gralen and T. Svedberg, Nature, Vol. 152, No. 3,865, 27/11/43, p. 625.)
698	17339	U.S.A.	... *Effect of Acetylation on Water-Binding Properties of Cellulose—Relation Between Physical Properties and Hygroscopicity.* (W. H. Aiken, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1206-1210.)

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699	17658	U.S.A. ...	*Cathodic Protection as a Means of Preventing Corrosion of Buried Pipe Lines.* (Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, pp. 623-624.)
700	17699	G.B.	*The Physical Properties of Steel Wire as Affected by Variations in the Drawing Operations.* (H. J. Godfrey, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 48-49.)
701	17706	U.S.A. ...	*Breakdown and Time Lag of Dielectric Materials (Breakdown of Liquid Carbon Tetrachloride).* (S. S. Attwood and W. H. Bixby, Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 259-272.)
702	17744	Germany ...	*Synthetic Bristles and Electrostatic Excitability—German Report.* (From Die Warme, Vol. 65, 1942, pp. 266-267.) (F. Broihan, British Plastics, Vol. 15, No. 175, December, 1943, pp. 426-428.)
703	18131	U.S.A. ...	*Machinability Ratings of Metals and Cutting Fluid Recommendations.* (O. W. Boston and others, Metal Progress, Vol. 44, No. 4, October, 1943, pp. 622-624.)
704	18137	U.S.A. ...	*The A.B.C. of Corrosion and Heat Resisting Steels (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 662.)
705	18159	U.S.A. ...	*Hardenability Calculated from Composition (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 742.)
706	18164	U.S.A. ...	*Nomograph for Calculation of Corrosion Rates.* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 786.)
707	18168	U.S.A. ...	*Relative Corrodibility of Some Common Metals and Alloys (Data Sheet).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 800.)
708	18193	U.S.A. ...	*Data on Damping Capacity of Many Metals.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, pp. 643-644.)
709	18348	G.B.	*Protection of Steel Pipes from Corrosion.* (J. H. Smith, Mechanical World Engineering Record, Vol. 114, No. 2,972, 17/12/43, pp. 717-719.)
710	18383	G.B.	*Stress Corrosion of Stainless Steel (Abstract).* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 66.)

B. Fabrication.

Welding (Arc, Spot, Resistance Fusion).

711	17118	G.B.	*Fusion Welding of Wrought Aluminium Alloys—Part III.* (Metal Industry, Vol. 63, No. 23, 3/12/43, pp. 358-360.)
712	17142	U.S.A. ...	*Welding Developments (Review of Papers Given at the American Welding Society's Convention).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 964-966.)

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713	17213	G.B.	...	*Fusion Welding of Wrought Aluminium Alloys—IV (Carbon Arc Welding, Heliarc Welding, Atomic Hydrogen Welding, "Weibel" Process, Technotherm-Rakos Process).* (Metal Industry, Vol. 63, No. 24, 10/12/43, pp. 375-376.)
714	17402	U.S.A.	...	*Cycle Welding Replaces Riveting.* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, p. 128.)
715	17435	G.B.	...	*Ignition Control for Seam-Welding Machines.* (Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 476-477.)
716	17436	G.B.	...	*Resistance Welding of Chain Cables.* (T. Scott Glover, Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 477-480.)
717	17521	U.S.A.	...	*Arc-Welding Speeded—Use of High Voltage Spark Maintains the Spark.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 274.)
718	17589	G.B.	...	*Welded Joints and the Izod Test.* (H. B. Ferguson, Engineer, Vol. 176, No. 4,588, 17/12/43, pp. 487-488.)
719	17673	U.S.A.	...	*Underwater Resistance Welding of Stranded Wire.* (Journal of the Franklin Institute, Vol. 236, No. 2, August, 1943, p. 230.)
720	17743	G.B.	...	*Scientific Welding and Plastics—The Reconditioning of Dies.* (C. W. Brett, British Plastics, Vol. 15, No. 175, December, 1943, pp. 423-424.)
721	17825	G.B.	...	*Alternating Current Arc Welding.* (Mechanical World, Vol. 114, No. 2,971, 10/12/43, p. 690.)
722	17953	G.B.	...	*Resistance Welding Practice (Instructional Film).* (Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2157-2163.)
723	17954	G.B.	...	*The Relative Advantages of Alternating and Direct Current in Shipyard Welding.* (H. F. Bibby, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2165-2167.)
724	17955	G.B.	...	*Speedy Repairs Effected by Bronze Welding.* (P. L. Pocock, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2168-2169.)
725	17956	G.B.	...	*Practical Guidance for Small Shops Installing Resistance Welding Equipment.* (L. H. Park, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2170-2172.)
726	17957	G.B.	...	*Swivelling Welding Platform.* (Sheet Metal Industries, Vol. 18, No. 200, December, 1943, p. 2152.)
727	17959	G.B.	...	*Welding and Welding Jigs.* (Sheet Metal Industries, Vol. 18, No. 200, December, 1943, p. 2153.)
728	18043	U.S.A.	...	*Electronic Control of Resistance Welding (Book Review).* (G. N. Chute, Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, pp. 312-313.)
729	18064	G.B.	...	*Vibrations, Application to Welding and Soldering Operations.* (Metal Industry, Vol. 63, No. 27, 31/12/43, p. 422.)

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730	18170	U.S.A. ...	*Welding Symbols* (*Adopted by American Welding Society*). (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 808.)
731	18171	U.S.A. ...	*Recommended Electrode Materials for Spot Welding Similar and Dissimilar Metals.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 814.)
732	18174	U.S.A. ...	*Chart Classifying the Principal Welding Processes.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 826.)
733	18175	U.S.A. ...	*Fluxes for Oxy-Acetylene Welding and Brazing* (*Data Sheet*). (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 828.)
734	18176	U.S.A. ...	*Speed of Manual Arc Welding* (*Chart*). (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 830.)
735	18183	U.S.A. ...	*Helium-Shielded Arc Welding for Light Metals.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 605.)
736	18189	U.S.A. ...	*Shear Tester for Spot Welds.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 620.)
737	18192	U.S.A. ...	"*Fish-Eyes*" *in Steel Welds.* (P. R. Jerabek, Metal Progress, Vol. 44, No. 4, Oct., 1943, pp. 640-642.)
738	18242	Germany ...	*Weibel Welding Method.* (Inter. Avia., Vol. —, No. 881, 19/8/43, pp. 1, 8-9.)
739	18294	G.B.	*Welding Hazards — Importance of Preventive Measures.* (Metal Industry, Vol. 64, No. 1, 7/1/44, p. 8.)
740	18331	G.B.	*Heavy Arc Weldings: A.C. or D.C.? Single or Multi-Operator?* (H. C. Bibby, Mechanical World, Vol. 114, No. 2,973, 24/12/43, pp. 725-728, 748.)
741	18398	G.B.	*Constant Current Ignition Control Panels for Resistance Welding Machines.* (B. G. Higgins, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 137-144.)
742	18399	G.B.	*Welding of Copper and Copper Alloys.* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 144.)
743	18400	G.B.	*Influence of the Composition of Shielded Arc Welding Electrodes.* (J. W. Miller, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 145-146.)
744	18401	G.B.	*Resistance Welding* (*M.O.S. Welding Memorandum 4A and 4B*). (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 146.)
745	18402	Switzerland ...	*Spot Welding in the Light Metal Industries* (From Schweiz-Techn. Zeitschrift, 1942, No. 26, pp. 373-378.) (P. Hellring, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 147-152.)
746	18451	U.S.A. ...	*Tack and Plug Welding Simplified.* (O. Craft, Machinist (European Edition), Vol. 87, No. 26, 16/10/43, p. 108.)
747	18490	G.B.	*Pressure Welding for Heavy Tubing.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 759.)

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748	18493	G.B.	*Shafting Repairs by Welding.* (H. Vale, Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 770.)
749	18496	G.B.	*Heavy Arc Welding: A.C. or D.C.2 Single or Multi-Operator —II.* (H. F. Bibby, Mechanical World, Vol. 114, No. 2,974, 31/12/43, pp. 772-777.)
			Heat Treatment.
750	18133	U.S.A. ...	*Factors Insuring Satisfactory Furnace Refractory Construction.* (J. Wallerius and others, Metal Progress, Vol. 44, No. 4, October, 1943, pp. 632-634.)
751	17137	U.S.A. ...	*Induction Furnace for Electric Melting of Aluminium.* (M. Tama, Metal Progress, Vol. 44, No. 5, November, 1943, pp. 967-968C.)
752	17139	U.S.A. ...	*Heat Treatment Problems (Review of Papers Given at the National Metal Congress).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 949-951.)
753	17144	U.S.A. ...	*Radio-Frequency Heating Applied to Wood Gluing.* (R. A. Bierwirth and C. N. Hoyler, Proc. of Institute of Radio Engineers, Vol. 31, No. 10, Oct., 1943, pp. 529-537.)
754	17365	G.B.	*Arc Welded Blast Furnace.* (Mechanical World, Vol. 114, No. 2,968, 19/11/43, pp. 598-599.)
755	17822	G.B.	*Observations on Foundry Technique.* (E. J. Raybould, Mechanical World, Vol. 114, No. 2,971, 10/12/43, p. 684.)
756	17880	G.B.	*Air Conditioning for Melting Furnaces.* (Light Metals, Vol. 6, No. 71, Dec., 1943, p. 578.)
757	17888	——	*H.-F. Electrothermics in the Technology of Light Metals—Pt. I (Account of Russian Practice).* (B. J. Brajnikoff, Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 615-621.)
758	17891	G.B.	*Constant Heating Rate Control—Application of Thermocouple-Rectifier Bias Principle.* (R. J. Smith, Metal Industry, Vol. 63, No. 26, 24/12/43, pp. 402-404.)
759	17952	G.B.	*Developments in Thermal Technique as Applied to Vitreous Enamelling Processes.* (J. Fallon, Sheet Metal Industries, Vol. 18, December, 1943, pp. 2149-2151.)
760	18156	U.S.A. ...	*Cooling Power of Quenching Baths (Chart).* (Metal Progress, Vol. 44, No. 4, October, 1943, p. 730.)
761	18184	U.S.A. ...	*Preventing Quench Cracks in Tool Steels.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 618.)
			Surface Protection (Spraying, Electro-Plating, etc.).
762	17116	G.B.	*Lead Coatings on Steel.* (G. Soderberg, Metal Industry, Vol. 63, No. 23, 3/12/43, p. 356.)
763	17156	G.B.	*Reclamation of Worn Parts by the Metal-Spraying Process.* (W. E. Ballard, Engineering, Vol. 156, No. 4,064, 3/12/43, pp. 457-458.)

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764	17226 G.B.	*Metal Protection—Temporary Coating Suitable for all Finishes.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 527.)
765	17244 G.B.	*Recent American Practice in Metal Spraying Worn Parts.* (Automobile Engineer, Vol. 33, No. 435, Nov., 1943, pp. 487-489.)
766	17370 G.B.	*Reconditioning Files.* (Mechanical World, Vol. 114, No. 2,970, 3/12/43, p. 656.)
767	17388 G.B.	*Hard Surfaces on Steel.* (D. Taylor, Civil Engineering, Vol. 38, No. 448, Oct., 1943, p. 235.)
768	17442 G.B.	*Painting Underwater Steel.* (Civil Engineering, Vol. 38, No. 447, Sept., 1943, p. 189.)
769	17530 U.S.A. ...	*Porous Chrome Plating of Piston Rings.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 283.)
770	17665 U.S.A. ...	*Reclaiming Worn Files.* (Journal of the Franklin Institute, Vol. 236, No. 1, July, 1943, p. 66.)
771	17684 U.S.A. ...	*Theory of the Potential and the Technical Practice of Electrodeposition.* (Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, pp. 304-305.)
772	17714 U.S.A. ...	*Flame-Priming Method of Preparing Steel Surfaces for Painting.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, p. 325.)
773	17731 G.B.	*Hard Chromium Plating on Steel* (Abstract). (A. W. Logozzo, Engineering, Vol. 156, No. 4,066, 17/12/43, p. 485.)
774	17890 G.B.	*Metallizing (Spraying Molten Metal on to Worn Machine Parts).* (N. C. Jones, Chemistry and Industry, Vol. 62, No. 51, 18/12/43, pp. 481-482.)
775	17892 G.B.	*Reclamation of Worn Parts.* (Metal Industry, Vol. 63, No. 26, 24/12/43, p. 404.)
776	18200 U.S.A. ...	*Design—Strengthened Sheet Metal.* (R. S. Smith, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-6.)
777	18296 G.B.	*Zinc Plating — Electrodeposition from Sodium Zincate Solutions.* (N. A. Tope, Metal Industry, Vol. 64, No. 1, 7/1/44, pp. 10-12.)
778	18297 G.B.	*Plating "Novelties" — Multi-Coloured Electroplates and Monel Plating.* (Metal Industry, Vol. 64, No. 1, 7/1/44, p. 12.)
779	18305 G.B.	*Bonded Deposits on Economiser Heating Surfaces —II.* (J. R. Rylands and J. R. Jenkinson, Engineering, Vol. 156, No. 4,068, 31/12/43, pp. 536-538.)
780	18327 G.B.	*The Repair of Worn or Over-Machined Parts by Electrodeposition.* (Machinery, Vol. 63, No. 1,628, 23/12/43, p. 715.)
781	18389 G.B.	*Electro-Tinning.* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 76-78.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Drilling, Cutting, Pressing, Extrusion.
782	17141	U.S.A.	...	*Matters Relating to Metal Cutting (Review of Papers Given at the National Metal Congress).* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 962-964.)
783	17349	G.B. ...	...	*Deep Hole Drilling.* (Machinery, Vol. 63, No. 1,622, 11/11/43, p. 543.)
784	17376	G.B. ...	...	*An Indexing Jig for Drilling Tangential Holes in a Spherical Surface.* (Machinery, Vol. 63, No. 1,623, 1/12/43, p. 576.)
785	17764	U.S.A.	...	*Portable Oil Well Drilling and Servicing Equipment.* (J. Moon, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 857-863.)
786	17870	U.S.A.	...	*Impact Extrusion and Cold Pressing of Aluminium Parts.* (P. Koenig, Automotive Industries, Vol. 89, No. 8, 15/10/43, pp. 38-40.)
787	18102	G.B. ...	...	*Screw Cutting Blind Holes.* (J. H. Davis, Machinery, Vol. 63, No. 1,626, 9/12/43, p. 661.)
788	18328	G.B. ...	...	*Flattening Steel Discs.* (Machinery, Vol. 63, No. 1,628, 23/12/43, pp. 716-718.)
789	18450	U.S.A.	...	*Tool Drills Angular Holes.* (European Edition, Machinist, Vol. 87, No. 26, 16/10/43, p. 107.)
790	18495	G.B. ...	...	*Metal Spinning.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 771.)
791	18499	G.B. ...	...	*Tube Cutting and Slitting.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 780.)
				Rolling, Milling, Drawing, Forging.
792	17246	G.B. ...	...	*Metal Drawing (American Practice in the Use of Lubricants).* (Automobile Engineer, Vol. 33, No. 443, Nov., 1943, pp. 499-500.)
793	17270	U.S.A.	...	*An Introduction to High Speed Milling.* (P. Dubosclard, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-6.)
794	17274	U.S.A.	...	*Aluminium Forging Technique Advanced.* (S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 24, 36.)
795	17308	G.B. ...	...	*Hyper-Milling with Carbide Cutters.* (Machinery, Vol. 63, No. 1,625, 2/12/43, pp. 617-621.)
796	17361	G.B. ...	...	*Fine Drawing of Gold-Covered Wire.* (Mechanical World, Vol. 114, No. 2,968, 19/11/43, p. 589.)
797	17581	G.B. ...	...	*Chemical and Physical Control in Relation to Rolling and Deep-Drawing Industries (Organisation of Suitable Laboratories and Equipment).* (C. S. Dobson, Metal Industry, Vol. 63, No. 25, 17/12/43, pp. 386-388.)
798	17696	Sweden	...	*The Cleaning of Heated Steel Before and During Rolling and Forging.* (G. Wallguist, Metallurgia, Vol. 29, No. 169, Nov., 1943, p. 43-44.)
799	17746	U.S.A.	...	*An Introduction to High Speed Milling.* (P. Dubosclard, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 865-871.)

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800	17946	G.B.	*The Principles of Lubrication in Modern Deep-Drawing Practice.* (H. A. H. Crowther and others, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2,099-2,105.)
801	18111	G.B.	*Forging and Heat-Treatment of Anti-Tank Shot* (Machinery, Vol. 63, No. 1,628, 23/12/43, pp. 709-714.)
802	18163	U.S.A. ...	*Draw Temperature for S.A.E. 1,050 Basic Steel Forgings (Chart).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 782.)
803	18169	U.S.A. ...	*Standard Tolerances for Forgings up to 100 lb. (Data Sheet).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 804.)
804	18173	U.S.A. ...	*Rules Governing Forging Machine Dies (Data Sheet).* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 822.)
805	18390	G.B.	*The Principles of Lubrication in Modern Deep-Drawing Practice (Contd.).* (H. A. H. Crowther and others, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 81-83, 88.)
			Polishing, Machining, Turning, Grinding.
806	17214	G.B.	*Electrolytic Polishing of Metals.* (S. Wernick, Metal Industry, Vol. 63, No. 24, 10/12/43, pp. 377-380.)
807	17235	G.B.	*Electrolytic Polishing—A Novel Method of Finishing Metal Surfaces.* (S. Wernick, Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 549-550.)
808	17242	G.B.	*Gear Grinding (Form Wheel Grinding).* (Automobile Engineer, Vol. 33, No. 433, Nov., 1943, pp. 477-482.)
809	17345	G.B.	*Machining Operations on Gun Barrels.* (Machinery, Vol. 63, No. 1,622, 11/11/43, pp. 533-536.)
810	17711	U.S.A. ...	*Dry Versus Wet Grinding of Carbide Tools.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 319-320.)
811	17776	U.S.A. ...	*Machining Cast Armour Plate—A Discussion of the Tools and Technique Required.* (F. W. Lucht, Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, pp. 559-563.)
812	17823	G.B.	*Centreless Grinding.* (H. Seymour, Mechanical World, Vol. 114, No. 2,971, 10/12/43, p. 685.)
813	17948	G.B.	*Industrial Metal Finishing. Pt. IV—Overcoming the Problems of Degreasing and Cleaning.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2121-2125.)
814	18099	G.B.	*Securing Fine Surface Quality by Grinding.* (H. J. Wills, Machinery, Vol. 63, No. 1,626, 9/12/43, pp. 657-659.)
815	18449	U.S.A. ...	*Ball Turning on a Lathe.* (F. J. Atzrott, European Edition, Machinist, Vol. 87, No. 26, 16/10/43, p. 105.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Bending and Expanding.
816	17109	U.S.A. ...	*Experimental Investigation of Tube Expanding.* (E. D. Grimson and G. H. Lee, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 497-505.)
817	17110	U.S.A. ...	*Practical Aspects of Making Expanded Joints.* (C. A. Maxwell, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 507-514.)
818	17111	U.S.A. ...	*Discussion — Expanded Tube Joints.* (Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 515-522.)
819	17757	U.S.A. ...	*Mechanics of Sheet Metal Bending.* (W. Schroeder, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 817-827.)
820	17762	U.S.A. ...	*Theory of the Expanding of Boiler and Condenser Tube Joints Through Rolling (with Discussion).* (A. Nadai, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 865-880.)
821	18477	—— ...	*List of References on Tube Bending.* (R.T.P. Bibliography No. 90, Sept., 1943.)
			Soldering and Brazing.
822	17211	G.B. ...	*Substitute Solder for Food Cans.* (Metal Industry, Vol. 63, No. 24, 10/12/43, pp. 373-374.)
823	17254	G.B. ...	*Low Tension Soldering Irons (Hints on Construction).* (Wireless World, Vol. 49, No. 11, November, 1943, pp. 340-341.)
824	17363	G.B. ...	*Brazing Electrical Connections.* (Mechanical World, Vol. 114, No. 2,968, 19/11/43, p. 597.)
825	17583	G.B. ...	*Soldering Techniques.* (D. L. Olwell and W. C. Lang, Metal Industry, Vol. 63, No. 25, 17/12/43, pp. 392-393.)
826	17700	G.B. ...	*A New Soft Solder (87.5 per cent. Lead, 0.5 per cent. Arsenic and 12 per cent. Antimony).* (Metallurgia, Vol. 29, No. 169, Nov., 1943, p. 49.)
827	17947	G.B. ...	*Conservation of Tin in Soft Solders.* (D. L. Colwell and W. C. Lang, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, p. 2106.)
828	17950	G.B. ...	*Solders and Soldering Practice.* (W. E. Hoare, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2129-2138.)
829	17958	G.B. ...	*Soldering Stainless Steels.* (Sheet Metal Industries, Vol. 18, No. 200, December, 1943, p. 2152.)
830	18062	G.B. ...	*Saving Tin in Solders and Babbits.* (Metal Industry, Vol. 63, No. 27, 31/12/43, pp. 420-421.)
831	18391	G.B. ...	*Conservation of Tin in Soft Solders.* (D. L. Colwell and W. C. Lang, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 84-86.)
832	18494	G.B. ...	*Brazing Copper Pipes.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 771.)
			Powder Metallurgy.
833	17193	U.S.A. ...	*Research on Powder Metals Inflammability.* (A.S.T.M. Bulletin, No. 124, Oct., 1943, p. 14.)

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834	17204	Germany	...	*Moulding Powders with Low Resin Content.* (Kunststoffe, Vol. 33, p. 97.) (Plastics, Vol. 7, No. 79, Dec., 1943, p. 542.)
835	17347	G.B.	...	*High Strength Parts Made from Powdered Metals.* (Machinery, Vol. 63, No. 1,622, 11/11/43, p. 538.)
836	17741	G.B.	...	*A New High Heat Resistant "Lucite" Moulding Powder.* (British Plastics, Vol. 15, No. 175, December, 1943, p. 420.)
837	17885	G.B.	...	*Powder Metallurgy of Aluminium and its Alloys.* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 594-597.)
838	18134	U.S.A.	...	*Dense Nickel Parts from Metal Powder.* (C. Hardy, Metal Progress, Vol. 44, No. 4, October, 1943, pp. 634-635.)
839	18439	U.S.A.	...	*Powder Metals Find Wide Use.* (European Edition, Machinist, Vol. 87, No. 26, 16/10/43, pp. 83-86.)
				Dies.
840	17285	U.S.A.	...	*Aluminium Alloy Forging Dies: Considerations in Their Design and Use.* (S.A.E. Journal, Vol. 51, No. 11, November, 1943, pp. 23-24.)
841	17318	G.B.	...	*Matrix Alloy for Die.* (Machinery, Vol. 63, No. 1,625, 2/12/43, p. 638.)
842	17344	G.B.	...	*The Maintenance of Die Casting Dies.* (H. K. Barton, Machinery, Vol. 63, No. 1,624, 25/11/43, pp. 609-611.)
843	17701	G.B.	...	*Cast Die for Forging Shells.* (P. Attenborough, Metallurgia, Vol. 29, No. 169, Nov., 1943, p. 50.)
844	17736	G.B.	...	*Plastics Dies and Punches—Properties and Uses of Thermo-Cast.* (British Plastics, Vol. 15, No. 175, December, 1943, pp. 396-400.)
845	18132	U.S.A.	...	*Hardening High Speed Taps and Dies in the Electric Salt Bath.* (P. C. Farren, Metal Progress, Vol. 44, No. 4, October, 1943, pp. 625-631.)
846	18397	G.B.	...	*The Development of Sintered Tungsten Carbide Drawing Dice.* (E. J. Sandford, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 129-134.)
				Tools and Machines.
847	17364	G.B.	...	*Care of Press Tools.* (Mechanical World, Vol. 114, No. 2,968, 19/11/43, p. 597.)
848	17686	G.B.	...	*Jigs and Tools for Anodising.* (G. O. Taylor, Metallurgia, Vol. 29, No. 169, Nov., 1943, pp. 7-10.)
849	17747	U.S.A.	...	*Standardization of Cutting Tools—Development of Fine-Finished, Single-Point, Chip Breaker Type.* (C. J. Wiberg, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 871-880.)
850	17751	U.S.A.	...	*Metal Cutting Nomograph (for Cutting Steel with Single Point Tools).* (W. W. Gilbert and W. C. Truckenmiller, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 893-898.)
851	17752	U.S.A.	...	*Cutting Angle Relationships on Metal Cutting Tools.* (M. Kronenberg, Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 901-904.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
§52	18100	G.B.	*Press Tool Hints.* (Machinery, Vol. 63, No. 1,626, 9/12/43, p. 659.)
§53	18301	G.B.	*Drying Machine for Coated Welding Rods.* (Engineering, Vol. 156, No. 4,068, 31/12/43, pp. 525-526.)
§54	18302	G.B.	*Reamer Honing Machine.* (Engineering, Vol. 156, No. 4,068, 31/12/43, pp. 527-528.)

C. Inspection.

X-Ray Inspection.

§55	17122	G.B.	*Radiographic Inspection Terminology.* (Metal Industry, Vol. 63, No. 23, 3/12/43, p. 362.)
§56	17136	U.S.A. ...	*Exposure Chart for Radiography of Steel.* (Metal Progress, Vol. 44, No. 5, November, 1943, p. 944B.)
§57	17152	G.B.	*Industrial Radiography.* (Engineering, Vol. 156, No. 4,064, 3/12/43, p. 447.)
§58	17527	U.S.A. ...	*High Speed X-Ray for Examination of Castings.* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 280-281.)
§59	17882	G.B.	*Interpretation of Radiographs (Assessing Quality of Castings).* (Light Metals, Vol. 6, No. 71, Dec., 1943, pp. 582-583.)
§60	17940	G.B.	*Technique of Intensity Measurements in X-Ray Crystal Analysis by Photographic Methods.* (J. M. Robertson, Journal of Scientific Instruments, Vol. 20, No. 11, November, 1943, pp. 175-179.)
§61	18083	U.S.A. ...	*Radiographic Inspection of Light Alloy Castings.* (R. Taylor, Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, pp. 36-40, 106.)
§62	18188	U.S.A. ...	*Handling Film for Radiography.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 618.)

Spectrographic and Microscopic Methods.

§63	17129	G.B.	*The Spectrographic Analysis of Copper and Copper-Rich Alloys by the Arc Method.* (H. Millbourn, Journal of Institute of Metals, Vol. 69, No. 10, Oct., 1943, pp. 441-463.)
§64	17360	G.B.	*The Spectrographic Analysis of Cast Iron.* (F. B. Ling and others, Mechanical World, Vol. 114, No. 2,968, 19/11/43, pp. 587-589.)
§65	17439	Germany ...	*A Tension-Optical Method for the Investigation of Contraction Processes in Paint Films (Abstract).* (W. Konig, Civil Engineering, Vol. 38, No. 447, Sept., 1943, p. 208.)
§66	17682	U.S.A. ...	*Infra-Red Spectroscopy for Determining the Nature and Characteristics of Materials.* (Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, p. 327.)
§67	17860	G.B.	*The Electron Microscope and its Application to Engineering Problems—No. 1.* (A. G. Quarrell, The Engineer, Vol. 176, No. 4,589, 24/12/43, pp. 499-502.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
868	18066	U.S.A.	...	*Analysis by Infra-Red Spectroscopy — A New Method Applied to Mixtures of Nitroparaffins.* (J. R. Nielsen and D. C. Smith, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 609-615.)
869	18186	U.S.A.	...	*Direct Positives for Micrographs.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, pp. 619-620.)
870	18227	G.B.	...	*The Electron Microscope and its Application to Engineering Problems—II.* (A. G. Quarrell, The Engineer, Vol. 176, No. 4,590, 31/12/43, pp. 526-528.)
871	18384	G.B.	...	*Microscopic Examination of Metal Coatings.* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 66.)
				Photometric Methods.
872	17765	G.B.	...	*The Rapid Photometric Determination of Aluminium in Magnesium Alloys.* (F. W. Haywood and others, Journal of the Society of Chemistry and Industry, Vol. 62, No. 11, Nov., 1943, pp. 187-189.)
873	18068	U.S.A.	...	*Photometric Estimation of Silicon in Magnesium and Magnesium Alloys.* (A. J. Boyle and V. V. Hughey, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 618-619.)
				Mechanical and Chemical Tests.
874	17107	U.S.A.	...	*Mechanical Tests of Cellulose Acetate—III.* (W. N. Findley, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 479-487.)
875	17192	U.S.A.	...	*Determining the Flash Points of Heavy Bodied Paints by the Tag Closed Cup and the Pensky-Martens Testers.* (D. Busper, A.S.T.M. Bulletin, Vol. —, No. 124, Oct., 1943, pp. 13-14.)
876	17535	G.B.	...	*Spot Tests for the Identification of Certain Metallic Coatings and of Certain Metals in Bulk (Book Review).* (B. S. Evans and D. S. Higgs, Chemistry and Industry, Vol. 62, No. 50, 11/12/43, p. 476.)
877	17821	G.B.	...	*The Spark Test for Ferrous Metals—Its Practical Application Using Standard Reference Specimens.* (Mechanical World, Vol. 114, No. 2,971, 10/12/43, pp. 674-677.)
878	17893	G.B.	...	*Chemical Analysis of Metals.* (Metal Industry, Vol. 63, No. 26, 24/12/43, p. 408.)
879	17894	G.B.	...	*Fineness Determination of Clay-Free Sands.* (O. J. Myers and R. Kattus, Metal Industry, Vol. 63, No. 26, 24/12/43, p. 409.)
880	18051	G.B.	...	*Rapid Test for Manganese in Tool Steel.* (Engineering, Vol. 156, No. 4,067, 24/12/43, p. 505.)
881	18069	U.S.A.	...	*Modified Basic Succinate Estimation of Aluminium in Magnesium Alloys.* (A. J. Boyle and D. F. Musser, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 621-622.)

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882	18070	U.S.A. ...	*Iodometric Estimation of Zinc in Magnesium Alloys.* (C. C. Casto and A. J. Boyle, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 623-624.)
883	18071	U.S.A. ...	*Determination of Small Amounts of Arsenic, Antimony and Tin in Lead and Lead Alloys.* (C. L. Luke, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 16/10/43, pp. 626-629.)
884	18076	U.S.A. ...	*Dithizone Method for the Rapid Determination of Copper.* (G. H. Bendix and D. Grabenstetter, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 649-652.)
885	18185	U.S.A. ...	*Determining Chromium in Alloy Steel.* (Metal Progress, Vol. 44, No. 4, Oct., 1943, pp. 618-619.)
886	18190	U.S.A. ...	*Fast and Accurate Analytical Methods for Metals and Alloys.* (W. G. Bullard, Metal Progress, Vol. 44, No. 4, Oct., 1943, p. 640.)
887	18267	U.S.A. ...	*Results of the Examination of Two Carbon Molybdenum Tubular Creep Test Specimens, with Particular Reference to Graphitization Caused by Testing Conditions.* (H. J. Kerr and F. Eberle, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-7.)
			Quality Control.
888	17362	G.B.	*Sand Quality and Control.* (Mechanical World, Vol. 114, No. 2,968, 19/11/43, pp. 596-597.)
889	17862	G.B.	*Quality Control (Symposium of Papers at the Institution of Mechanical Engineers).* (Various Authors, The Engineer, Vol. 176, No. 4,589, 24/12/43, pp. 507-508.)
890	18090	G.B.	*Practical Application of Quality Control.* (W. A. Bennett and J. W. Rodgers, Machinery, Vol. 63, No. 1,628, 23/12/43, pp. 701-706.)
891	18352	U.S.A. ...	*Getting a Better Grip on Quality Control.* (J. Gaillard, S.A.E. Preprints, 10-14/1/44, pp. 1-8.)
			INSTRUMENTS.
			Gauges.
892	17095	G.B.	*A Case for the Standardization of Boost Gauges.* (Flight, Vol. 44, No. 1,823, 2/12/43, pp. 619-620.)
893	17600	Germany ...	*New Caliper Gauges for Measuring the Wall Thickness of Tubes.* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 164.)
894	17971	G.B.	*Glass Gauges (Some Disadvantages).* (C. A. Coppach, Aircraft Production, Vol. 6, No. 63, January, 1944, p. 16.)
895	18340	G.B.	*Pressure Gauges—Their Installation, Maintenance and Repair.* (J. R. Fawcett, Mechanical World, Vol. 114, No. 2,973, 24/12/43, pp. 743-748.)

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			Compasses.
896	17806	U.S.A. ...	*Bendix Develops New Gyro Flux Compass.* (American Aviation, Vol. 7, No. 12, 15/11/43, p. 91.)
897	18210	U.S.A. ...	*Magnesyn Remote Reading Compass.* (Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 17-27/1/43, pp. 1-22.)
898	18276	G.B.	*Gyro Flux-Gate Compass (Magnetic Compass Uses a New Principle).* (Flight, Vol. 45, No. 1,828, 6/1/44, pp. 20-21.)
899	18416	U.S.A. ...	*Bendix Gyro Flux-Gate Compass.* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, p. 37.)
			Meters.
900	17138	U.S.A. ...	*Precision of Pyrometers.* (Metal Progress, Vol. 44, No. 5, November, 1943, pp. 908C-908D.)
901	17519	U.S.A. ...	*The Spectrophotometer Aids Camouflage Work (Matching Camouflage Colours).* (Scientific American, Vol. 169, No. 6, December, 1943, p. 270.)
902	17705	U.S.A. ...	*The Calibration of the Electromagnetic Microbarograph.* (E. L. Sulkowski, Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 239-258.)
903	17759	U.S.A. ...	*A Thermal Anomometer for Low Velocity Flow.* (R. A. Seban and others, Transactions of the A.S.M.E., Vol. 65, No. 8, Nov., 1943, pp. 843-846.)
904	18042	U.S.A. ...	*Construction of Monochromator Cams for Recording Spectrophotometers.* (J. M. Moran, Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, pp. 287-291.)
905	18074	U.S.A. ...	*An Improved Automatic Gas Effusiometer (for the Determination of the Specific Gravity of Gases).* (L. C. Drake, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, p. 647.)
906	18208	U.S.A. ...	*Altimeter Setting Indicator (for Installation at Airports).* (C. H. Colvin, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-5.)
907	18212	U.S.A. ...	*A Multiple Recording Manometer (for Wind Tunnel Testing).* (P. J. Campbell, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-11.)
			Miscellaneous.
908	17162	G.B.	*Gyroscopic Principles and Applications—No. 2.* (C. E. Inglis, Engineer, Vol. 176, No. 4,586, 3/12/43, pp. 452-453.)
909	17182	U.S.A. ...	*Vapour Pressure Slide Rule.* (F. T. Miles, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1052-1061.)

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910	17217	G.B.	*Gyroscopic Principles and Applications.* (C. E. Inglis, The Engineer, Vol. 176, No. 4,587, 10/12/43, pp. 464-465.)
911	17662	U.S.A. ...	*Quartz Crystals Used to Measure High Accelerations.* (Journal of the Franklin Institute, Vol. 236, No. 1, July, 1943, p. 8.)
912	18041	U.S.A. ...	*Some Improvements for the Analytical Ultracentrifuge.* (D. H. Moore, Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, pp. 295-297.)

PRODUCTION.

Organisation and Control.

913	17172	U.S.A. ...	*Symposium of Man Power Problems in Chemical Industry (Training Programmes for Chemists, Training Programmes for Chemical Engineers, Training of Women Operators for Chemical Industry, How Industry is Solving its Man Power Problems, Chemical Man Power for Post-War Industries).* (Various Authors, Industrial and Engineering Chemistry, Vol. 21, No. 20, 25/10/43, pp. 1701-1715.)
914	17219	G.B.	*Post-War Industrial Reconstruction.* (The Engineer, Vol. 176, No. 4,587, 10/12/43, p. 463.)
915	17237	G.B.	*The Rôle of the Progress Department in Speeding Up Production.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 548.)
916	17309	G.B.	*Monopoly and Control—Germany's Master Plan (Book Review).* (J. Berkin and C. A. Welsh, Machinery, Vol. 63, No. 1,625, 2/12/43, pp. 622-624.)
917	17319	G.B.	*Notes on Standardisation and Production Efficiency (Technical Bulletin, Nov., 1943).* (Journal of the Institution of Production Engineers, Vol. 22, No. 11, Nov., 1943, pp. 85-93.)
918	18345	G.B.	*Buying Department and Stores Records.* (Mechanical World Engineering Record, Vol. 114, No. 2,972, 17/12/43, pp. 703-705.)
919	17352	G.B.	*Production Control—A Method of Approach.* (W. F. Walker, Machinery, Vol. 63, No. 1,622, 11/11/43, pp. 548-552.)
920	17356	G.B.	*Women Engineers in War and After.* (G. L. Entwisle, Mechanical World, Vol. 114, No. 2,967, 12/11/43, pp. 568-569.)
921	17369	G.B.	*Material Schedule and Standard — Eliminating Waste in Production.* (Mechanical World, Vol. 114, No. 2,970, 3/12/43, pp. 649-650.)
922	17559	U.S.A. ...	*Government Procurement of Aircraft.* (A. W. Knauth, Air Law Review, Vol. 12, No. 1, January, 1941, pp. 34-39.)
923	17598	Germany ...	*Swiss Aircraft Industry.* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 158.)
924	17726	G.B.	*Post-War Industrial Reconstruction.* (Engineering, Vol. 156, No. 4,066, 17/12/43, pp. 491-492.)

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925	17829	G.B.	*Allied Aircraft Output.* (Aeroplane, Vol. 65, No. 1,699, 17/12/43, p. 686.)
926	17904	U.S.A. ...	*Aircraft Industry and Profits.* (R. L. Hoadley, Aviation, Vol. 42, No. 10, October, 1943, pp. 114-116, 322-325.)
927	17975	G.B.	*Stores and Materials Control—Efficient Organisation to Aid Production.* (F. W. Cook, Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 44-47.)
928	18112	America ...	*Control of Surplus Aircraft Disposal.* (American Aviation, Vol. 7, No. 13, 1/12/43, p. 26.)
			Research and Training.
929	17154	G.B.	*Education for the Public Services.* (Engineering, Vol. 156, No. 4,064, 3/12/43, p. 452.)
930	17171	G.B.	*Organization of Scientific and Industrial Research in India.* (Nature, Vol. 152, No. 3,865, 27/11/43, pp. 622, 639.)
931	17239	G.B.	*Importance of Research to Industry.* (Automobile Engineer, Vol. 33, No. 433, Nov., 1943, p. 469.)
932	17431	G.B.	*Higher Technical Education.* (Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 471-472.)
933	17437	U.S.A. ...	*Curtiss Research Laboratory.* (A. F. Donovan, Curtiss Fly Leaf, Vol. 26, No. 1, March-April, 1943, pp. 12-14.)
934	17591	G.B.	*Technical Education (Report of the Council of the City and Guilds of London Institute).* (Engineer, Vol. 176, No. 4,588, 17/12/43, p. 490.)
935	17755	U.S.A. ...	*Eleventh Annual Meeting of the Engineers' Council for Professional Development (E.P.C.D.) (Review of Post-War Problems and Their Effects on Engineering Education).* (Mechanical Engineering, Vol. 65, No. 12, December, 1943, pp. 915-920.)
936	17789	G.B.	*The Social Sciences in Great Britain.* (Nature, Vol. 152, No. 3,867, 11/12/43, pp. 669-670.)
937	17792	G.B.	*Suggested New School of Aeronautical Science.* (Nature, Vol. 152, No. 3,867, 11/12/43, pp. 686-687.)
938	17793	G.B.	*Functions of the Special and General Libraries.* (Nature, Vol. 152, No. 3,867, 11/12/43, pp. 687-688.)
939	17803	U.S.A. ...	*German Research Facilities "Extensive" (Further Expansion of N.A.C.A. Research Programme).* (K. E. Johnsen, American Aviation, Vol. 7, No. 12, 15/11/43, p. 19.)
940	17977	G.B.	*Laboratory and Production (Need for Close Co-operation).* (W. A. Sparks, Aircraft Production, Vol. 6, No. 63, January, 1944, p. 49.)
941	18246	G.B.	*Training of Aeronautical Engineers in Great Britain (Proposals).* (Inter. Avia., No. 881, 19/8/43, p. 10.)
942	18433	U.S.A. ...	*Professional Education for Aviation's Managers.* (U.S. Air Services, Vol. 28, No. 11, November, 1943, p. 11.)

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			Aircraft and Aero Engine Production.
943	17373	G.B. ...	... *Stretching Structural Parts for Aircraft (Stretch-Forming Tests and Typical Production Methods).* (F. C. Hoffman, Machinery, Vol. 63, No. 1,623, 1/12/43, pp. 561-570.)
944	17387	G.B. ...	... *The Preparation, Workmanship and Inspection of Riveted Connections.* (R. H. Selby Hele, Civil Engineering, Vol. 38, No. 448, Oct., 1943, pp. 216-219.)
945	17453	G.B. ...	... *Weighing an Air Liner.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 35.)
946	17572	G.B. ...	... *Russian Landscape (the Dynamic Aircraft Industry —New Development).* (Flight, Vol. 44, No. 1,825, 16/12/43, pp. 670-671.)
947	17582	G.B. ...	... *Moulding Large Bronze Propellers.* (Metal Industry, Vol. 63, No. 25, 17/12/43, pp. 389-391.)
948	17603	Germany	... *Drying "Mosquito" Fuselage with Infra-Red Heat (Photograph).* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 166.)
949	17865	U.S.A.	... *Engineering Production of Flying Fortresses (the Technical Aspects of the Boeing-Douglas-Vega Production Problem).* (M. Short, Automotive Industries, Vol. 89, No. 8, 15/10/43, pp. 17-21, 92-95.)
950	17907	U.S.A.	... *Refrigerators to Thunderbolt Wings (Account of Servel's Wing Fabrication Methods, etc.).* (G. E. Stedman, Aviation, Vol. 42, No. 10, October, 1943, pp. 142-147, 346.)
951	17912	U.S.A.	... *Plastic Shields Speed Blade Balancing.* (Aviation, Vol. 42, No. 10, October, 1943, p. 167.)
952	17913	U.S.A.	... *100-Ton Rotary Unit for Curing Rubber Propeller Blade Cuffs at Hamilton Standard Propeller Plant.* (Aviation, Vol. 42, No. 10, October, 1943, pp. 167-168.)
953	17914	U.S.A.	... *Pliofilm Raincoat for Shipping P-40 Aircraft Bodies.* (Aviation, Vol. 42, No. 10, October, 1943, p. 168.)
954	17949	G.B. ...	... *Development of Aircraft Detail Fittings (Part 4).* (W. Cookson, Sheet Metal Industries, Vol. 18, No. 200, December, 1943, pp. 2126-2128.)
955	17970	G.B. ...	... *The Halifax Undercarriage Bridge Casting (Use of Magnesium and Special Foundry Production Methods).* (J. A. Gates, Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 21-31.)
956	17978	G.B. ...	... *Curing Machine—Continuously-Operating Turntable for Hamilton Airscrew Blades.* (Aircraft Production, Vol. 6, No. 63, January, 1944, p. 50.)
957	17990	Canada	... *Fly-Cutting to Victory (Use of Tool Bits in Special Adapters to Overcome Shortage of Milling Cutters).* (G. Fox, Commercial Aviation, Vol. 5, No. 9, Sept., 1943, pp. 76-82.)
958	17994	Canada	... *Milling Spars for the "Lancaster."* (H. L. Flynn, Commercial Aviation, Vol. 5, No. 9, Sept., 1943, pp. 108-114.)

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959	18000	U.S.A. ...	*The Lockheed P. 38 Lightning (Mechanised Assembly Methods, etc.).* (J. H. Sreenan, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 121-131, 309-310.)
960	18006	U.S.A. ...	*How Fewer Workers Build More Bomber Nose Sections (Use of Unique Breakdown System and Special Tooling at Consolidated Vultee Plants).* (Aviation, Vol. 42, No. 9, Sept., 1943, pp. 161-165.)
961	18008	U.S.A. ...	*Conservation in Canada's Aircraft Industry (Saving Materials and Man Hours by Improved Methods of Production).* (J. Montagnes, Aviation, Vol. 42, No. 9, Sept., 1943, pp. 181, 283-286.)
962	18096	G.B.	*Production Short-Cuts on Aircraft Parts (Eliminating Wrinkles in Forming Operations, Simplifying Contour Milling Operations, etc.).* (Machinery, Vol. 63, No. 1,626, 9/12/43, pp. 645-650.)
963	18253	Germany ...	*Mass Production of Do. 217.* (K. W. Pielike, Luftwelt, Vol. 10, No. 21, 1/11/43, pp. 422-423.)
964	18388	G.B.	*The Manufacture of Steel Landing Mats.* (Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, p. 75.)
965	18419	U.S.A. ...	*Salt Bath Treatment of Aircraft Parts.* (S. M. Defoy, Automotive and Aviation Industries, Vol. 59, No. 9, 1/11/43, pp. 38-40, 156.)
966	18441	U.S.A ...	*Shot-Blasting Aircraft Engine Parts.* (European Edition, Machinist, Vol. 87, No. 26, 16/10/43, pp. 88-89.)
967	18452	U.S.A. ...	*Self-Locking Terminal Assembly (Tongue Punched in Flat Pieces Keep Screws from Backing Out and Eliminates Lockwasher).* (T. C. Du Mond, Machinist, Vol. 87, No. 26, 16/10/43, p. 108.)
			General Industrial Methods.
968	17354	G.B.	*Photographic Layout Methods.* (Mechanical World, Vol. 114, No. 2,967, 12/11/43, p. 560.)
969	17379	G.B.	*Diagrams on Metal Surfaces by Photography.* (Mechanical World, Vol. 114, No. 2,966, 5/11/43, p. 526.)
970	17509	U.S.A. ...	*Colour-Matching in Industry—Use of Recording Spectrophotometer.* (J. Markus, Scientific American, Vol. 169, No. 6, December, 1943, pp. 256-258.)
971	17510	U.S.A. ...	*Precision Casting for the Production of Small Metal Parts (Use of Lost-Wax Process).* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 259-261.)
972	17514	U.S.A. ...	*Industrial Uses of Felt—Survey of Recent Developments.* (W. Colwell, Scientific American, Vol. 169, No. 6, December, 1943, pp. 265-266.)
973	17724	G.B.	*Special Screw Cutting in an Amateur's Workshop.* (Engineering, Vol. 156, No. 4,066, 17/12/43, p. 486.)
974	17866	U.S.A. ...	*Production of Steel Cartridge Cases in Large Quantities.* (J. Geschelin, Automotive Industries, Vol. 89, No. 8, 15/10/43, pp. 22-25, 62.)

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975	18308	G.B.	...	*Ink v. Pencil Tracings.* (Engineering, Vol. 156, No. 4,068, 31/12/43, p. 534.)
976	18339	G.B.	...	*Printing Production Templates.* (Mechanical World, Vol. 114, No. 2,973, 24/12/43, p. 742.)
977	18375	U.S.A.	...	*Infra-Red Spectroscopy—Industrial Applications (Comprehensive Survey) (including Library of Reference Curves).* (R. B. Barnes and Z. V. Williams, Industrial and Engineering Chemistry (Analytical Ed.), 11/11/43, pp. 659-707.)
978	18395	G.B.	...	*Photographic Reproduction of Layouts on Metal.* (A. H. Tiltman, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 117-127, 134.)
979	18444	U.S.A.	...	*Concave Surfaces Can be Milled.* (C. Havranek, European Edition, Machinist, Vol. 87, No. 26, 16/10/43, p. 97.)
				Tools and Equipment.
980	17368	G.B.	...	*Equipment and Methods for the Production Heat Treatment of Gears.* (Mechanical World, Vol. 114, No. 2,970, 3/12/43, pp. 645-648.)
981	17398	U.S.A.	...	*Mechanical Furnace—Loading Device Saves Steels and Cuts Production Time.* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 115, 130.)
982	17974	G.B.	...	*Special Purpose X-Ray Equipment for Quantity Production Inspection of Aircraft Bearings and Light Alloy Castings.* (Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 42-43.)
983	18136	U.S.A.	...	*Wartime Applications of Industrial Gas Equipment.* (E. G. de Coriolis, Metal Progress, Vol. 44, No. 4, October, 1943, pp. 647-648, 654-656.)
984	18411	U.S.A.	...	*Diversification of War Products at Minneapolis-Moline Plant (Survey of Installations and Equipment).* (J. Geschelin, Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 18-24, 72.)
985	18423	U.S.A.	...	*Device for Duplicating Exact Contours (Dupligraph).* (Automotive and Aviation Industries, Vol. 59, No. 9, 1/11/43, pp. 84-85.)
986	18440	U.S.A.	...	*Simplified Grinder Aids Production.* (S. L. Huffman, European Edition, Machinist, Vol. 87, No. 26, 16/10/43, p. 87.)
				Scrap, Salvage and Fuel Economy.
987	17353	G.B.	...	*Industrial Salvage in Peace and War.* (Mechanical World, Vol. 114, No. 2,967, 12/11/43, pp. 559-560.)
988	18500	G.B.	...	*Ways of Effecting Fuel Economy in the Factory (the Effects of Keeping Records, etc.).* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, pp. 760-761.)
989	17683	U.S.A.	...	*Ford Reclaims Tungsten Carbide Chips.* (Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, pp. 325-326.)

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			Workers' Welfare.
990	17173	U.S.A. ...	*Industrial Safety (National Safety Council Meeting).* (F. J. Van Antwerpen, Industrial and Engineering Chemistry, Vol. 21, No. 20, 25/10/43, pp. 1721-1723.)
991	17429	G.B. ...	*Air-Conditioning Developments.* (B. C. Oldham and G. E. Clifford, Engineering, Vol. 156, No. 4,065, 10/12/43, pp. 465-466.)
992	17502	U.S.A. ...	*Home Air-Conditioning with New Type of Gas-Fired Refrigeration Unit.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 249.)
993	17503	U.S.A. ...	*Industrial Temperature Control.* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 250-252.)
994	17513	U.S.A. ...	*Music in Industry.* (H. Burris-Meyer, Scientific American, Vol. 169, No. 6, December, 1943, pp. 262-264.)
995	17828	G.B.	*Causes of Factory Fires.* (Mechanical World, Vol. 114, No. 2,971, 10/12/43, p. 673.)
996	18393	G.B.	*The Scope of Lighting in Industry.* (J. H. Nelson, Sheet Metal Industries, Vol. 19, No. 201, Jan., 1944, pp. 101-108.)
997	18491	G.B.	*Reducing Factory Noise.* (Mechanical World, Vol. 114, No. 2,974, 31/12/43, p. 763.)
			TRANSPORT.
			Military Vehicles, Tanks, Trucks, etc.
998	17220	G.B.	*The Guy "Quad-Ant" Chassis—a Four-Wheel Drive Military Vehicle.* (Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 511-517.)
999	17222	——	*U.S. Light Tank M-5 (Fitted with Automobile Engines and Semi-Automobile Gear Boxes).* (Automobile Engineer, Vol. 33, No. 444, December, 1943, p. 522.)
1000	17775	U.S.A. ...	*Evolution of the Army's Vehicles for Amphibious Operations.* (E. S. Van Deusen, Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, pp. 555-558.)
1001	17786	U.S.A. ...	*Versatile Army Vehicles (the Half-Tracks Prove Adaptable to Many Uses).* (R. P. Johnson, Army Ordnance, Vol. 25, No. 141, Nov.-Dec., 1943, pp. 596-599.)
1002	18078	U.S.A. ...	*American Tank Engines.* (Automotive and Aviation Industries, Vol. 89, No. 10, 15/11/43, pp. 20-22.)
			Locomotives, Automobiles.
1003	17231	G.B.	*Steering Gears—Some Notes on Their Performance Characteristics.* (H. N. Charles, Automobile Engineer, Vol. 33, No. 444, December, 1943, pp. 533-537.)
1004	17241	G.B.	*A Battery Electric Vehicle.* (Automobile Engineer, Vol. 33, No. 433, Nov., 1943, pp. 471-476.)
1005	17256	U.S.A. ...	*Trends in Future Car Design (S.A.E. Meeting).* (National Petroleum News, Vol. 35, No. 42, 20/10/43, pp. 20, 38.)

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1006	17272	U.S.A.	...	*Post-War Research Possibilities in Railway Equipment.* (W. I. Cantley, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-8.)
1007	17281	U.S.A.	...	*Future Automobiles (Symposium of Papers) (Excerpts).* (Various Authors, S.A.E., Vol. 51, No. 11, Nov., 1943, pp. 28-29, 45-47.)
1008	17517	U.S.A.	...	*Air-Rail Terminal Planned at Oklahoma City.* (Scientific American, Vol. 169, No. 6, December, 1943, p. 270.)
1009	18053	G.B.	...	*Counter-Pressure Brake Testing of Locomotives.* (D. R. Carling, Engineering, Vol. 156, No. 4,067, 24/12/43, p. 514.)
1010	18414	U.S.A.	...	*Future Car Designs (Symposium of Papers Presented at the S.A.E.).* (Automotive and Aviation Industries, Vol. 89, No. 9, 1/11/43, pp. 28-30, 154.)

WIRELESS AND ELECTRICITY.

Radio (Reception, Antennæ, Transmitters, etc.).

1011	17146	U.S.A.	...	*The Distribution of Current Along a Symmetrical Centre-Driven Antenna.* (R. King and C. W. Harrison, Proc. Institute of Radio Engineers, Vol. 31, No. 10, Oct., 1943, pp. 548-567.)
1012	17147	U.S.A.	...	*Some Aspects of Radio Reception at Ultra-High Frequency. Part IV—General Superheterodyne Considerations at Ultra-High Frequencies.* (L. Malter, Proc. Institute of Radio Engineers, Vol. 31, No. 10, Oct., 1943, pp. 567-575.)
1013	17148	U.S.A.	...	*Some Aspects of Radio Reception at Ultra-High Frequencies. Part V—Frequency Mixing in Diodes.* (E. W. Herold, Proc. Institute of Radio Engineers, Vol. 31, No. 10, Oct., 1943, pp. 575-582.)
1014	17250	G.B.	...	*Radio Data Charts—12. Inductance, Capacity and Frequency; Short Wave.* (J. M. Sowerby, Wireless World, Vol. 49, No. 11, Nov., 1943, pp. 324-326.)
1015	17252	G.B.	...	*Commando Signals (Organisation and Equipment).* (Wireless World, Vol. 49, No. 11, November, 1943, pp. 332-334.)
1016	17253	G.B.	...	*International Telecommunications.* (Wireless World, Vol. 49, No. 11, November, 1943, p. 339.)
1017	17676	U.S.A.	...	*Glass Kite String Used for Box Kite for Radio Antenna.* (Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, p. 240.)
1018	17712	U.S.A.	...	*War Standards for Military Radio.* (S. K. Wolf, Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 321-322.)
1019	17715	U.S.A.	...	*Radio Parts Tested Under Extreme Temperature Ranges.* (Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 325-326.)
1020	17967	G.B.	...	*Plastic Aerial Masts—Characteristics of Laminated Fabric and Paper (Moulding and Winding Processes).* (W. A. Cook, Aircraft Production, Vol. 6, No. 63, January, 1944, pp. 17-19.)

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1021	18035	G.B.	*Frequency-Modulation Transmitter and Receiver for Studio-to-Transmitter Relay System.* (W. F. Goetter, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 600-606.)
1022	18036	G.B.	*Power-Tube Performance in Class C Amplifiers and Frequency Multipliers as Influenced by Harmonic Voltage.* (R. I. Sarbacher, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 607-625.)
1023	18037	G.B.	*Coupled Antennæ and Transmission Lines.* (R. King, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 626-640.)
1024	18038	G.B.	*Radio Production for the Armed Forces.* (S. C. Hooper, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 640-642.)
1025	18039	G.B.	*Standard Frequency Broadcast Service of National Bureau of Standards.* (Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 642-643.)
1026	18209	U.S.A. ...	*Resonant Electrical Control Systems (Application to Single and Multi-Channel Radio Control).* (D. W. Moore, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-6.)
1027	18211	U.S.A. ...	*Vultee Radio Recorder (for Flight Performance Data).* (H. D. Giffen, Preprints of 11th Annual Meeting of Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-20.)
1028	18241	U.S.A. ...	*Emergency Wireless Transmitter (Range 150 Miles, 33 lb.).* (Inter. Avia., No. 881, 19/8/43, p. 11.)
1029	18377	G.B.	*A Tentative Statistical Study of Domestic Radio Interference.* (S. Whitehead, The Journal of Institution of Electrical Engineers, Vol. 90, Part III, No. 12, Dec., 1943, pp. 181-192.)

General Electricity (Petersen Coils, Cosmic Rays, etc.).

1030	17104	U.S.A. ...	*Process Lags in Automatic Control Circuits.* (J. G. Ziegler and N. B. Nichols, Trans. A.S.M.E., Vol. 65, No. 5, July, 1943, pp. 433-434.)
1031	17499	G.B.	*Neutral Earthing and Petersen Coils (1937 to Date).* (Science Library Bibliographical Series, No. 597, 21/10/43, pp. 1-2.)
1032	17663	U.S.A. ...	*On the Absorption of the Hard Component of the Cosmic Radiation.* (M. E. Rose, Journal of the Franklin Institute, Vol. 236, No. 1, July, 1943, pp. 9-45.)
1033	17795	G.B.	*Wave Guides in Electrical Communication.* (Nature, Vol. 152, No. 3,807, 11/12/43, p. 701.)
1034	18034	G.B.	*Stability in High Frequency Oscillators.* (R. A. Heising, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, pp. 595-600.)
1035	18044	U.S.A. ...	*Electromagnetic Waves (Book Review).* (S. A. Schelkunoff, Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, pp. 310-311.)

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1036	18073	U.S.A. ...	*Hydrogen Electrode Half-Cell in Polarography.* (J. P. Baumberger and K. Bardwell, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 639-641.)
1037	18075	U.S.A. ...	*Apparatus for Photoelectric Titrations (Application to Dark Coloured Resins).* (R. H. Osborn and others, Industrial and Engineering Chemistry (Analytical Ed.), Vol. 15, No. 10, 18/10/43, pp. 642-646.)
1038	18300	G.B.	*The Heating of Electromagnet Windings.* (G. Windred, Engineering, Vol. 156, No. 4,068, 31/12/43, pp. 521-523.)
1039	18376	G.B.	*The Frequency Synthesizer (with Discussion).* (H. J. Finden, The Journal of Institution of Electrical Engineers, Vol. 90, Part III, No. 12, Dec., 1943, pp. 165-180.)
1040	18378	G.B.	*Standardization of Commercial Electric Motor Dimensions.* (A. Marryat, The Journal of Institution of Electrical Engineers, Vol. 90, Part II, No. 18, Dec., 1943, pp. 369-380.)
1041	18380	G.B.	*Discussion on "The Law of Moving-Iron Instrument" and "Theory of the Force or Torque of Soft Iron Electrical Instruments."* (The Journal of Institution of Electrical Engineers, Vol. 90, Part II, No. 18, Dec., 1943, pp. 492-498.)
1042	18381	G.B.	*Discussion on "Some Problems in the Application of Electric Heating to Commercial Premises."* (The Journal of Institution of Electrical Engineers, Vol. 90, Part II, No. 18, Dec., 1943, pp. 499-501.)
1043	18409	G.B.	*Lightning Protection of Buried Cable.* (Nature, Vol. 152, No. 3,858, 9/10/43, pp. 424-425.)
1044	18434	G.B.	*Protection of Structures Against Lightning (with Discussion).* (J. F. Shipley, The Journal of Institution of Electrical Engineers, Vol. 90, Part I, No. 36, Dec., 1943, pp. 501-523.)
1045	18435	G.B.	*Cosmic Rays (Abstract).* (E. Berry, The Journal of Institution of Electrical Engineers, Vol. 90, Part I, No. 36, Dec., 1943, p. 523.)
			Electronics.
1046	17251	G.B.	*Electronic Voltage Regulators (Contd.).* (F. L. Hogg, Wireless World, Vol. 49, No. 11, November, 1943, pp. 327-331.)
1047	18040	G.B.	*Electronics—New Field of Development.* (C. J. Marsden, Proceedings I.R.E., Vol. 31, No. 11, 11/11/43, p. 644.)
1048	18262	U.S.A. ...	*The Theory and Design of Electronic-Control Apparatus.* (W. D. Cockrell, A.S.M.E. Preprints, Vol. —, No. —, 29th Nov.-3rd Dec., 1943, pp. 1-10.)
1049	18349	G.B.	*Electronic Motor Control.* (H. Seymour, Mechanical World Engineering Record, Vol. 114, No. 2,972, 17/12/43, p. 712.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			LIGHT AND HEAT.
			Heat Transfer.
1050	17145	U.S.A. ...	*Heat Conduction Problems in Presses Used for Glueing of Wood.* (G. H. Brown, Proc. Institute of Radio Engineers, Vol. 31, No. 10, Oct., 1943, pp. 537-548.)
1051	17183	U.S.A. ...	*Condensation of Vapours (Film Coefficients of Heat Transfer for the Condensation of Alcohols, Esters and Ketones).* (D. F. Othmer and S. Berman, Industrial and Engineering Chemistry, Vol. 35, No. 10, 7/10/43, pp. 1068-1077.)
1052	17273	U.S.A. ...	*Absorption of Heat by the Walls of a Furnace.* (J. Blizard, A.S.M.E. Preprints, 29th Nov.-3rd Dec., 1943, pp. 1-7.)
1053	17338	U.S.A. ...	*Nomograph of Dittus-Boetter Equation (Predicting Heat Transfer Coefficient).* (C. J. Ryant, Industrial Engineering and Chemistry, Vol. 35, No. 11, Nov., 1943, pp. 1187-1188.)
1054	17604	Germany ...	*Automatic Adjustment of Heat Transfer in Oil Coolers by Use of Corrugated Tubes (Increase of Circulating Pressure Open Tube and Reduce Cooling).* (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 166.)
1055	17654	U.S.A. ...	*A Note on the Symmetry of Certain Thermodynamic Relations.* (J. W. Creely and others, Journal of the Franklin Institute, Vol. 235, No. 6, June, 1943, pp. 617-622.)
1056	18057	U.S.A. ...	*Constant Heating Rate Control by the Thermo-Couple-Rectifier Bias Principle.* (R. J. Smith, Metal Progress, Vol. 4, No. 4, October, 1943, pp. 613-616.)
1057	18487	G.B.	*The Insulation of Medium and Low Pressure Steam Pipes—The Calculation of Heat Loss from Lagged Pipes.* (H. Buckley, Mechanical World, Vol. 114, No. 2,974, 31/12/43, pp. 733-736, 778-779.)
			Light Distribution, Colour, etc.
1058	17650	U.S.A. ...	*Theory of the Half-Tone Process. II—The Diffraction Theory—Calculation of the Light Distribution.* (J. A. C. Yule, Journal of the Franklin Institute, Vol. 235, No. 5, May, 1943, pp. 483-497.)
1059	17680	U.S.A. ...	*On the Geometry of Colour Space (Specification of Colour).* (D. E. Spencer, Journal of the Franklin Institute, Vol. 236, No. 3, September, 1943, pp. 293-302.)
1060	17796	G.B.	*Optical Topics in Part Connected with Charles Parsons.* (Lord Rayleigh, Nature, Vol. 152, No. 3,867, 11/12/43, pp. 676-682.)
1061	18379	G.B.	*Discussion on "Fluorescent Lamps."* (The Journal of Institution of Electrical Engineers, Vol. 90, Part II, No. 18, Dec., 1943, pp. 478-491.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			PHOTOGRAPHY
			(HIGH SPEED CAMERA, R.A.F. TRAINING, Etc.).
1062	17389	U.S.A. ...	*The Camera Installations on Photographic Reconnaissance Aircraft (Photos).* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 54-55.)
1063	17400	U.S.A. ...	*Photographing Templates.* (Flying and Popular Aviation, Vol. 33, No. 5, Nov., 1943, pp. 118-119.)
1064	17446	G.B.	*Work of the Photographic Reconnaissance Unit.* (Trade and Engineering Times, Vol. 53, No. 956, Oct., 1943, p. 31.)
1065	17515	U.S.A. ...	*Photography, an Industrial Tool.* (A. Perry, Scientific American, Vol. 169, No. 6, December, 1943, pp. 267-269.)
1066	17674	U.S.A. ...	*"Fish Eye" Camera Provides Quick Solution of Lighting Problems (Especially Suitable for Studying the Illumination in Aeroplanes and Factories).* (Journal of the Franklin Institute, Vol. 236, No. 2, August, 1943, pp. 230-231.)
1067	17788	U.S.A. ...	*The Quantitative Determination of Hypo in Photographic Prints with Silver Nitrate.* (J. I. Crabtree and others, Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, pp. 351-360.)
1068	17846	G.B.	*Teaching Air Photography.* (J. Yoxall, Flight, Vol. 44, No. 1,826, 23/12/43, pp. 689-692.)
1069	18046	U.S.A. ...	*High Speed Movie Camera (8,000 Frames a Second).* (Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, p. 323.)
1070	18124	G.B.	*The Strategic Eye—I (Historical Development of the Williamson Type Aerial Camera).* (The Aeroplane, Vol. 65, No. 1,700, 24/12/43, pp. 728-729.)
1071	18318	G.B.	*The Strategic Eye—II (Aerial Cameras).* (The Aeroplane, Vol. 65, No. 1701, 31/12/43, pp. 754-755.)
1072	18319	G.B.	*R.A.F. No. 1 School of Photography.* (The Aeroplane, Vol. 65, No. 1,701, 31/12/43, pp. 758-759.)
1073	18371	U.S.A. ...	*Photographic Observations in Flight of the Stalling of Rotating Wings.* (F. J. Bailey, Jn., Procs. of Rotating Wing Aircraft Meeting at Franklin Institute, November-December, 1939, pp. 115-125.)
1074	18408	G.B.	*Clinical Photography.* (Nature, Vol. 152, No. 3,858, 9/10/43, pp. 423-424.)
			METEOROLOGY
			(MET. OBSERVATORIES, LIGHTNING PHENOMENA, Etc.).
1075	17415	Canada ...	*Meteorology and Air Training—II.* (P. Perry, Canadian Aviation, Vol. 16, No. 10, Oct., 1943, pp. 56-57, 102-105.)
1076	17576	G.B.	*Plan for Chain of Magnetic Stations and Meteorological Observatories Throughout the Colonies.* (Flight, Vol. 44, No. 1,825, 16/12/43, p. 677.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
1077	18045	U.S.A. ...	*Oceanography for Meteorologists (Book Review).* (H. W. Sverdrup, Review of Scientific Instruments, Vol. 14, No. 10, Oct., 1943, pp. 319-320.)
1078	18203	U.S.A. ...	*Lightning Phenomena.* (C. D. McCann, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-26.)
1079	18204	U.S.A. ...	*The Determination of Vertical Velocities in Thunderstorms.* (C. E. Buell, Preprints of Papers Presented at the 11th Annual Meeting of the Institute of Aeronautical Sciences, 27-29/1/43, pp. 1-6.)

PHYSIOLOGY AND AVIATION MEDICINE.

1080	17167	G.B.	*Patulin—Anti-Bacterial Properties.* (Nature, Vol. 152, No. 3,805, 27/11/43, pp. 619-620.)
1081	17169	G.B.	*Colour of Red Corpuscles.* (H. Hartridge, Nature, Vol. 152, No. 3,865, 27/11/43, p. 629.)
1082	17501	U.S.A. ...	*Penicillin Poses Production Problems.* (Scientific American, Vol. 169, No. 6, December, 1943, pp. 247-249.)
1083	17722	U.S.A. ...	*Experimental Burns. Changes in the Phosphorus Content and Moisture Content of Muscle.* (J. O. Ely, Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, pp. 416-424.)
1084	17723	U.S.A. ...	*Refrigerated Container Designed for Food Now Speeds Blood for Red Cross.* (Journal of the Franklin Institute, Vol. 235, No. 4, April, 1943, p. 350.)
1085	17794	G.B.	*Binocular and Uniocular Threshold of Vision.* (M. H. Pirenne, Nature, Vol. 152, No. 3,867, 11/12/43, pp. 698-699.)
1086	17797	G.B.	*Distribution of Colour Blind Men in Great Britain.* (P. E. Vernon and A. Straker, Nature, Vol. 152, No. 3,867, 11/12/43, p. 690.)
1087	18030	U.S.A. ...	*Pilot Medical Data Should be Collected (Abstract of Paper Presented at Aero Medical Association Meeting).* (W. R. Stovall, Civil Aeronautics Journal, Vol. 4, No. 11, 15/11/43, pp. 147, 162.)
1088	18108	U.S.A. ...	*New Apparatus for Revealing Diplopia (Double Vision) in Applicants for Pilot Certificates.* (A. J. Herbolshimer, American Aviation, Vol. 7, No. 13, 1/12/43, p. 21.)

MATHEMATICS AND PHYSICS.

1089	17081	——	*The Integration of the Reynolds Equation for Journal Bearing of Finite Width.* (G. Vogelpohl, Ingenieur Archiv., Vol. 14, No. 3, 1943, pp. 192-212.)
1090	17707	U.S.A. ...	*The Path Equation for Motion on the Surface of the Rotating Earth in a Uniform Parallel Field of Force with Initial Velocity Along the Field.* (W. S. Kimball, Journal of the Franklin Institute, Vol. 235, No. 3, March, 1943, pp. 273-283.)

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Note.—As far as possible, the country of origin quoted in the items refers to the original source.

The Superposition of Undamped Two-Dimensional Pressure Waves of Large Amplitude. (H. Pfriem, Akustische Zeitschrift, Vol. 7, No. 2, March, 1942, pp. 56-65.) (122/1 Germany.)

The author considers the single large amplitude pressure wave as made up of elementary waves following each other in succession, each wave travelling at the particular speed corresponding to the condition existing in the wake of its predecessor. In the case of an originally homogeneous atmosphere, each elementary wave will travel at a constant speed which however will differ from element to element. If, however, two elementary waves overlap, due to two pressure pulses travelling in opposite direction along the same path, the gas particle subjected to the simultaneous action of two elementary waves will assume a resultant state which will determine the new speed of propagation. If a_1, u_1 represent the sonic state and velocity at given particles when subjected only to

the action of elementary wave 1 travelling in the $+x$ direction (*i.e.*, direction of increasing particle velocity) and a_2, u_2 represent similar effects of wave 2 travelling in the opposite direction, the author shows the new velocities of 1 and 2 on meeting as given by :—

$$+(a+u)=\left\{\frac{(\gamma+1)}{(\gamma-1)}\right\}a_1-\left\{\frac{(3-\gamma)}{(\gamma-1)}\right\}a_2-a_0+u_0 \quad . \quad . \quad . \quad (1)$$

$$-(a-u)=-\left\{\frac{(\gamma+1)}{(\gamma-1)}\right\}a_2-\left\{\frac{(3-\gamma)}{(\gamma-1)}\right\}a_1-a_0-u_0 \quad . \quad . \quad . \quad (2)$$

where a_0 and u_0 refer to conditions in the undisturbed atmosphere. The problem of superposition of large amplitude waves is therefore solved provided we can determine the time and place of meeting of the elementary waves of known sonic state. The author shows that this problem reduces itself to the solution of the two simultaneous partial differential equations :—

$$\frac{\partial a_1}{\partial t}+(a+u)\frac{\partial a_1}{\partial x}=0 \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

$$\frac{\partial a_2}{\partial t}-(a-u)\frac{\partial a_2}{\partial x}=0 \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

The general solution of these equations has been given by Riemann but is exceedingly complex. Reasonably simple expressions for x and t are however obtained, if the gas is supposed to be monoatomic. In this case we obtain :—

$$x-(a+u)\,t=\frac{\partial}{\partial a_1}\left[\frac{F(a_1)+G(a_2)}{a}\right]$$

$$x+(a-u)\,t=\frac{\partial}{\partial a_2}\left[\frac{F(a_1)+G(a_2)}{a}\right]$$

where $F(a_1)$ and $G(a_2)$ are functions depending on the shapes of the two large amplitude disturbances and are considered as given. Knowing the time and place of meeting of two elementary waves, the shape of the pressure waves in the zone of superposition can be determined. It appears that the mutual distortion is strictly limited to this field of superposition and that the waves, after leaving this zone and re-entering the original homogeneous atmosphere, have exactly the same shape as if they had progressed separately through the homogeneous atmosphere. They thus differ from their original shape only by the general steepening of the front associated with the normal propagation of large amplitude waves. It is interesting to note that in the special case of a gas with $\gamma=3$, the distortion of the waves in the field of superposition is eliminated. This follows from (1) and (2) where, on making the necessary substitutions, we find :—

$$a+u=2a_1-a_0+u_0$$

and

$$a-u=2a_2-a_0-u_0$$

Inserting these values in (3) and (4), we see that the simultaneous differential equations now become mutually independent, each representing a progressive wave travelling at a speed depending only on its proper sonic condition.

On the Question of Using Unshrouded Blades in Gas Turbines. (I. Shevyakov, Sovietskoye, Kotloturbostroynie, No. 1, Jan., 1940, pp. 30-32.) (122/2 U.S.S.R.)

In impulse turbines using steam, it is usual to surround the outer blade tips with a ring or shroud. This reduces leakage losses and also strengthens the blade assembly, but obviously raises the blade temperature since the cooling effect due to the rotor is reduced. Efficient blade cooling is the chief limiting factor in gas turbines and the question thus naturally arises whether in their

case the possibility of utilising a higher gas temperature in the absence of a shroud outweighs the drop in power due to increased leakage. For this purpose the author has carried out model experiments on a rotor sector containing six blades and subjected to the impact of air at about 200 m./sec., the reaction being statically balanced. The blades were 17 mm. in height, the corresponding nozzle exit diameter being 15 mm.

Measurements were made both with shrouded and unshrouded blades, intermediate readings being also taken with the shroud placed at various distances from the blade tips and thus providing radial clearances varying from 0 to 3 mm. Over this range, the result can be represented by the equation

$$\lambda = \frac{.04}{(.16+\sigma)} + .75$$

where $\lambda = \dfrac{\text{torque measured with radial clearance } \delta}{\text{torque at zero clearance}}$

σ = relative clearance

$= \delta / l$

δ = actual clearance

l = height of blade

With the shroud completely removed (rotor without casing, *i.e.*, infinite clearance) $\lambda \rightarrow .8$.

Slightly better results can be obtained, if the axes of the nozzles are arranged to lie on a conical instead of a cylindrical surface. Thus an inclination of 10° with the axis of rotation raises $\lambda_{\sigma=\infty}$ to .84 and $\lambda_{\sigma=.05}$ now becomes .955 instead of .940 as for the cylindrical case. It is evident that nozzle inclination reduces the leakage. Since, however, shock losses due to impact of jet with rotor disc are likely to become more pronounced with inclination of jet, the optimum inclination will depend on the particular design investigated and can only be obtained experimentally. In any case the net benefit associated with nozzle inclination is not likely to be large for reasonably small clearances.

Provided that relative clearances of the order $\sigma = .05$ can be maintained the leakage effect on torque is less than 5 per cent. The author is of the opinion that this slight loss is negligible compared with the advantage due to improved blade cooling made possible by the absence of the shroud and unshrouded blades should therefore always be adopted in gas turbines.

A Photographic Profile Recorder for Airscrews and Model Aerofoil. (R. Kuhl and K. Raab, Luftwissen, Vol. 5, No. 5, May, 1938, pp. 183-185.) (122/3 Germany.)

The aerofoil under examination is supported along its longitudinal axis and subjected to intense transverse illumination by a very narrow plane beam of light. The resulting illuminated section is photographed by a camera which rotates about the specimen, special gearing ensuring that the photographic plate maintains its position in space during the rotation and thus only undergoes a parallel displacement.

The plane of the plate and that of the light used for the illumination are parallel and both are perpendicular to the axis of rotation of the camera and the plate axis. At the same time the optical centre of the objective lies on the line joining the points of intersection " plate plane—plate axis " and " light plane—camera axis of rotation." The optical axis of the camera then lies on a conical surface and since the light beam takes part in the camera rotation, all parts of the contour are photographed in succession and a complete and closed contour is recorded for a camera rotation of 360°. Successive contours along the longitudinal axis of the aerofoil are obtained by displacing the latter longitudinally

through the camera cone, the maximum chord which can be accommodated in the apparatus being limited by the circular path of the objective (~ 30 cm.). Since the carriage for the longitudinal motion can deal with aerofoils up to 3 m. in length, the apparatus will deal with full-scale propeller blades.

In order to reduce cost, the recorded profile is reduced to half-scale, standard plates 13 × 18 cm. being used in the camera.

Examples of profile distribution along the axis of an airscrew are given. These are photographed on the same plate after successive displacement of the airscrew. By means of reference marks attached to the propeller and reproduced photographically the pitch setting of each section can be determined.

The recorder is also of use for measuring up model aerofoils and checking possible twist or distortion. The profile lines on the plate are very sharp and the co-ordinates can easily be measured to 1/100 mm.

Method of Increasing the Low Temperature Stability of Cellulose Acetate Films. (Z. Rogovin and Z. Ivanova, J. Appl. Chem., U.S.S.R., Vol. 14, No. 6, 1941, pp. 834-842.) (R.T.P. Translation No. 2,121.) (122/4 U.S.S.R.)

The increased brittleness at low temperature (−50°C.) of articles made of cellulose acetate is one of their chief defects and a wide field of application of such products would open out if this difficulty could be overcome.

Whilst it is possible that the low temperature stability or frost resistance of high polymers can be improved by the addition of suitable plasticisers, the authors are of the opinion that a more profitable method of attack is a closer study of the primary material itself and for this reason they have carried out extensive experiments on the effect of molecular size, fractionation, amount of etherification, method of film formation and concentration of acetate on the low temperature stability of unplasticised films, averaging 200 μ in thickness. The temperature range over which the mechanical properties were tested varied from +80°C. to −50°C., the feature examined being the ultimate tensile strength of the film (kg./mm.^{2}), the percentage elongation at fracture and the number of alternate creasings the film could stand before fracture. The authors consider the latter test as the most valuable in determining the brittleness of the film being much more sensitive than the reduction in percentage elongation. This is borne out by the following table.

Representative figures for a commercial unplasticised film. These were obtained on testing machines specially devised for the purpose.

Temperature.	Ultimate tensile.	% Elongation.	Number of repeated creases before fracture.
+80°C.	7 kg./mm.^{2}	20	300
+20°C.	9 kg./mm.^{2}	20	150
−50°C.	12 kg./mm.^{2}	10	2

From the data given by the authors it appears that the principal methods by which low temperature stability of the commercial product can be improved are:—

(1) Fractionisation, *i.e.*, ensuring that the sample is homogeneous and of high molecular weight (~ 70,000).

(2) Reduction in combined acetic acid below 50 per cent.

(3) High concentration (~ 25 per cent.) of cellulose acetate in solvent (85/15 acetone and alcohol or 85/15 dichlorethane and alcohol).

(4) Formation of film in vacuo (20-30 mm. Hg., 20°C.).

By combining all the above treatments, it is possible to obtain unplasticised cellulose acetate films the elastic properties of which at −50°C. are at least as good as those of the standard unfractionated film at +20°C.

Vibration Table for Dynamic Tests in the Sonic Frequency Range. (F. L. Meister, A.Z., Vol. 7, No. 2, March, 1942, pp. 51-56.) (122/5 Germany.)

The vibration table developed by the "Reichsanstalt" consists of a small hollow box made of light alloy clamped to the centre of a weak diaphragm. Top and bottom of the box are provided with hollow cylindrical armatures made of high tensile bronze, 10 cm. in diameter and 2 cm. long, and provided with about 10 turns of wire. These armatures project into strong ring-shaped magnetic fields (~ 10,000 gauss) produced by two separately excited electromagnets of suitable shape placed respectively above and below the box. The top armature is supplied with alternating current of accurate sine form and known frequency produced by a valve circuit operating in conjunction with an amplifier and transformer, the bottom armature being used as an indicator of the box motion (induced E.M.F. recorded on an oscillograph).

The apparatus has the following advantages:—

(1) Very accurate sine vibrations over the frequency range 5-1,000/sec. are generated (the lower limit corresponds to the natural frequency of the box diaphragm combination).

(2) For frequencies below 100/sec., the amplitude can be increased to the order of 1 mm.

(3) An accurate record of the motion of the table up to the highest frequencies is readily possible.

The fact that the box container is relatively small is no disadvantage, since the modern vibration indicators and accelerometers (for which the test apparatus is mainly intended) are all of very compact design and thus easily accommodated inside the box.

Test results on two carbon pile accelerometers are given. These experiments were carried out at constant vibratory velocity but variable frequency, *i.e.*, the current fed to the forcing coil was so adjusted that the induced E.M.F. on the lower recording coil remained constant and independent of frequency. In this case the accelerometer readings should increase linearly with frequency up to a limit depending on the natural frequency of the instrument and the damping. By repeating the tests with different values for the constant vibratory velocity, the characteristic of the accelerometer as regards natural frequency and damping can be readily obtained. A special point in favour of the vibration table is the excellent cooling of the excitation coil which renders possible endurance runs under stable conditions over considerable periods of time.

Some Notes on the Theory of the Campini System of Jet Propulsion. (G. A. Varshovsky, J. Tech. Physics, U.S.S.R., Vol. 11, No. 12, 1941, pp. 1,123-1,127.) (122/6 U.S.S.R.)

Fundamentally, the Campini system of jet propulsion consists of the following parts:—

(1) A diverging nozzle, facing in the direction of motion, the entering velocity being W_1, pressure p_1, temperature T_1.

(2) After compression in this nozzle (at an adiabatic efficiency of η_d) the air enters an engine-driven compressor at zero velocity, pressure p_2, where it has its pressure raised to p_3, the adiabatic compression efficiency being η_c.

(3) A portion of this air is supplied to the engine, and the remainder, after picking up heat from the engine radiator (or cooling fins) and after further possible heat addition due to the combustion of fuel in an auxiliary combustion chamber, enters the discharge nozzle at a tempera-

ture T_4 and a pressure p_3 (any pressure drop in the flow passages being neglected).

(4) The compressed air finally expands from p_3 to atmospheric pressure p_1, attaining an exit speed of W_2.

As is well known, the thrust produced per kg. of air passing through the system $=(W_2-W_1)/g$ kg., and if the assembly moves in this direction through still air, the propulsive work per kg. $=W_1(W_2-W_1)/g$ kgm. Dividing this by q (the total amount of heat added per kg. of air) gives the thermal efficiency η_e of propulsion whilst division by the kinetic energy at entry gives what the author calls the thrust coefficient $C=2(W_2-W_1)/W_1$.

The author obtains expressions for η_e and C which are functions of the following quantities:—

(1) The Mach number at entry.

(2) γ and C_p of air (it is assumed that the products of combustion have the same specific heat).

(3) η_d and η_c.

(4) η_m = thermal efficiency of engine.

(5) ϕ = adiabatic efficiency of reaction nozzle.

(6) ψ = percentage heat utilisation factor ($1-\psi$ = percentage heat loss of system).

(7) $1/n$ = percentage of total heat supplied to engine ($1-1/n$ = heat supplied to auxiliary combustion chamber).

(8) T_1 = temperature at entry.

(9) Total heat supplied q.

Keeping the factors (2) to (7) constant, η_e is thus a function of Ma, q and T_1 only and curves are plotted for η_e as a function of q/C_pT_1 with Ma^2 as parameter, using the following constants:—

$$\eta_d=.96$$
$$\eta_c=.88$$
$$\phi=.98$$
$$\psi=.98$$
$$\eta_m=.29 \text{ and } .40 \text{ respectively}$$
$$n=1$$

With $\eta_m=.29$ and a propeller efficiency of 80 per cent., a standard engine will give a thermal propulsion efficiency of about 23 per cent. The curves show that the Campini system will exceed this at $Ma^2=.2$ for q/C_pT_1 between .1 and .2 and for $Ma^2=.4$, η_e will be in excess of 25 per cent. over the q/C_pT_1 range .1 to .5.

For higher Ma values, the benefits of the jet system become more pronounced. When applied, however, to an engine of higher inherent thermal efficiency (*e.g.*, $\eta_n=.4$) Mach numbers of .6 will have to be exceeded before the jet system discussed shows any marked improvement over the standard propeller. (N.B.—It is assumed that the propeller can be designed to maintain 80 per cent. efficiency throughout.)

Experimental Layout for Recording Speed Variation in Turbulent Flow. (G. Datwyler, Mitt. E.T.H., Zurich, No. 8, 1943, pp. 34-43.) (122/7 Switzerland.)

Airspeed measurements with a hot wire anemometer consist in recording the voltage drop across the wire for a constant heating current. On account of thermal inertia, such a wire does not respond immediately to speed fluctuations

and the record is distorted both as regards amplitude and phase. If

a_w = response to a speed amplitude a at frequency $w = 2\pi f$.

a_0 = response under steady conditions $w = 0$,

we have

$$\frac{a_w}{a_0} = \frac{1}{\sqrt{(1+w^2M)}} e^{-i \tan^{-1} wM} \quad . \quad . \quad . \quad . \quad (1)$$

where M = time constant of anemometer.

$$= \frac{mS(T-T_0)}{(.24\, I^2R_0)}$$

where m = mass of wire.

S = its specific heat.

T = mean temperature of wire.

T_0 = temperature of unheated wire.

R_0 = resistance of unheated wire.

I = current.

M thus represents the time required for the wire to reach the working temperature T with a constant heat input of $.24\, I^2R_0$, starting at T_0.

Equation (1) shows that under these conditions, the recorded amplitude is decreased in the ratio $1/\sqrt{(1+w^2M^2)}$ and there is a phase lag of $\tan^{-1} wM$ in addition.

If the instrument is therefore to be used for turbulence investigations, the electric recording circuit must be such that the amplification increases with frequency and that the phase is automatically advanced.

This is achieved in a relatively simple manner by putting into the plate circuit a resistance R in series with an inductance L. Under these conditions, the amplification v becomes

$$v = \{ \mu/(1+R_i/R) \}$$
$$\sqrt{[\{1+(wL/R)^2\}/\{1+(wL)/(R_i+R)^2\}]}\, e^{i \tan^{-1}[(wL/R)\{1-1/(1+R_i/R)\}]}$$

where R_i = internal resistance of valve

μ = no load amplification of valve.

This is the correct amount, provided

$L/R = M$.

$R_i \gg R$.

μ = constant over frequency range.

In practice, R_i, although large, cannot be considered as ∞. The resulting error is however very small. Thus in a particular case

$R_i = 750{,}000\ \Omega$.

$L = 3$ Henry.

$M = .004$ sec.

$R = 750\ \Omega$.

$f =$	10	100	1,000	10,000
$1/\sqrt{\{1-(wL/(R_i+R)^2\}} =$	1	1	1	1.031

The amplitudes are thus reproduced up to frequencies of 10,000/sec. with an error of less than 3 per cent., whilst the phase error over the same range is negligible.

The arrangement adopted in the E.T.H. Laboratory consists of a three-stage amplifier with capacity coupling, the first and last stage acting as normal resistance amplifiers whilst the intermediate stage is provided with the inductive compensation described above, together with a five-step grid potentiometer in order to adjust the amplification to the degree of existing turbulence.

The anode circuit of the last stage is provided with a sensitive thermo ammeter, consisting of a thermocouple attached to a fine resistance. The E.M.F. generated in the couple varies as the square of the anode current and thus is a measure of the mean square speed fluctuation of the flow (independent of frequency). The actual speed fluctuations can also be recorded on an oscillograph.

As an example of the application of the apparatus, turbulence surveys in the wake of a model aerofoil of 340 mm. chord are given for various distances from the trailing edge. Defining the turbulence factor as $\sqrt{\bar{u}^2}/U$ when U = undisturbed stream flow, the records show a maximum value of 7.8 per cent. at 30 mm. and dropping to 5 per cent. at 100 mm.

Striation Technique Applied to the Supersonic Wind Tunnel. (P. de Haller, Mitt. E.T.H., Zurich, No. 8, 1943, pp. 44-49.) (122/8 Switzerland.)

The great advantage of striation technique when applied to high speed flow phenomena is the fact that the field of flow can be surveyed qualitatively without creating additional disturbances due to the introduction of measuring instruments into the high speed air stream. The application of the method to supersonic wind tunnels is, however, complicated by the large field of view required (spherical aberration of optical system!) as well as by the deformation of the observation windows due to the relatively high vacuum usually existing in the tunnel. To overcome these difficulties, the whole system comprised of light source, slot, edge plate and camera is mounted on a common stand and can be orientated in any direction.

The wind tunnel measuring section is provided with two windows and carries a concave mirror of 3 m. focal length facing the rear window. The light (Phillips high pressure mercury vapour lamp) after being focussed on the slot traverses the channel section from front to rear (40 cm.) and on emergence at the back window (30 cm. diameter) is reflected by the concave mirror, thus producing an image of the slot on the edge plate. The light then passes through the camera objective and is reflected by a plane mirror on to a ground glass screen or photographic plate placed close to and slightly to one side of the camera lens. The position of the edge plate relatively to the illuminated slot can be adjusted by means of a micrometer screw, whilst their common mounting can be rotated so as to observe density gradients in different directions. The lens system, being highly achromatic, enables the use of a powerful light source without the need of a filter. The fact that the light traverses the measuring field twice increases the sensitivity of the method still further.

Although, as already stated, the striation method is intended mainly for qualitative studies of the field of flow, it is interesting to note that the apparatus enables quantitative measurements of pressure gradients of the order of 1 per cent. per cm. For this purpose, a number of subsequent exposures are taken for different positions of the edge plate, the exposure times and air pressure being the same as in the flow investigation proper, with the exception that the wind velocity is now zero. These exposures are made on a previously unexposed portion of the film. After development, the density of these exposures is compared with those of the flow pattern by means of a photometer. This enables the corresponding angles of deviation to be determined irrespective of difference in emulsion or development of film.

The Aerodynamic Laboratory of the E.T.H., Zurich. (J. Ackeret, Mitt. E.T.H., No. 8, 1943, pp. 5-33.) (122/9 Switzerland.)

The E.T.H. wind tunnel has a working section of 3×2.1 m. which is adjustable, so that the tunnel walls can be made either convergent, divergent or parallel.

In this manner a constant pressure can be maintained over an appreciable length of tunnel which is very important in drag investigations on fuselage models. On the other hand, experiments on turbine blades can be carried out with a negative pressure gradient and actual working conditions thus reproduced more accurately. Finally the tunnel walls can be removed entirely and the wind tunnel operated with a free jet, but adjustable collector nozzle. This is of advantage when relatively large models have to be investigated, since in this case the velocity distribution is less interfered with (displacement flow). The adjustment of the collector nozzle proved very beneficial in reducing stagnation effects and renders the subsequent velocity conversion very efficient, the overall tunnel factor being 3.86 (referred to power supply).

The air current is supplied by two axial blowers (2.5 m. blade diameter) situated in the return circuit and operating in parallel. Each of these blowers is rated at 275 h.p. at 1,400 r.p.m. and supplies 230 $m.^3$/sec. at a pressure difference of 80 $kg./m.^2$. At this continuous rating, the air speed in the working section is of the order of 80 m./sec., which can be increased to 90 m./sec. for short periods (20 minutes). The D.C. motors driving the fans are under Ward-Leonard control, speed synchronisation being assured by a silk belt. Considerable trouble was at first experienced with variations in the supply frequency of the three-phase motor driving the Leonard group. The corresponding speed variations of the driving motor was finally cured by an electric valve circuit which controls the excitation of the dynamo to within very narrow limits.

In addition to this large tunnel, the laboratory also has a small high speed tunnel with a circular working section of 25 cm. diameter. This apparatus is mainly intended for the calibration of pitot tubes at speeds up to 170 m./sec.

The most interesting equipment of the E.T.H. is supersonic wind tunnel with a working section of 40×40 cm. By operating in a closed circuit under low pressure, a Mach number of 2 can be reached for a power consumption of less than 1,000 h.p. The tunnel is operated by a 13-stage axial compressor supplied by B.B.C. and running at a maximum speed of 3,900 r.p.m. This type of machine was chosen, since its restricted diameter ($\sim$ 120 cm.) facilitates installation. Moreover, control is facilitated, since by cutting out some of the guide wheels, the pressure ratio can be reduced from its maximum value of 2.4 without the idle stages absorbing appreciable power.

Elaborate precautions are taken to pressure seal the bearings of the compressor and prevent oil entering the air stream.

As is well known, cooling the air of a supersonic tunnel presents a major problem. A special air cooler capable of dealing with 750,000 K. cal./hour is built into the circuit preceding the working section. The cooler consists of three independent units placed one behind the other, and although offering an appreciable resistance, its presence serves to steady down the air stream.

Apart from the usual investigations on aerofoils, the tunnel has lately been used for experiments on a 300 h.p. air turbine. It appears that a reduction in the aerodynamic losses of such machines ranks at least equal with metallurgical improvements. By inserting the turbine in the supersonic wind tunnel circuit, the effect of variation of Re and Ma on performance can be readily studied. Moreover, by means of special apparatus, it is hoped to follow out the flow in the interior of the machine. According to the director of the E.T.H. such turbines are likely to become the power plant of the future and such a development by itself would more than justify the expense of the supersonic tunnel.

Development of Stall Warning Indicators. (J. George, 12th Annual Meeting, Inst. Aeron. Sciences, Jan., 1944.) (Preprint available.) (122/10 U.S.A.)

From statistics it appears that over 100 fatal accidents directly attributable to stalling occurred in the U.S.A. in 1941. There is thus an urgent need for a

reliable and practical device which will warn the pilot in a very positive manner of the approaching stall. Obviously, utmost reliability is essential, since, once adopted, pilots would depend on the warning and a faulty response would constitute an increased hazard. Experiment has shown that for a given aerofoil, stalling occurs at a definite angle of attack irrespective of air speed, and the problem is therefore solved if a reliable angle of attack indicator can be evolved. Two successful devices of this type have been investigated by the C.A.A. The first, known as the Gurley indicator, depends on the travel of the stagnation point at the leading edge of the wing as the incidence changes. Under normal flight conditions this point is on the upper surface of the wing, but will move round the nose on to the lower surface with increasing angle of attack (stall). A light vane projecting from the nose into the air stream will be deflected downwards if the stagnation point is above the vane. This corresponds to normal flight conditions. At minimum safe flying speed, the stagnation point has travelled below the vane and will deflect it upwards, thus closing a switch operating a klaxon or signal lamp. In practice, the position of the vane is chosen so that a warning is given at a speed of about 25 per cent. in excess of stalling speed. Templates are provided so that this position can be readily found on any given shape wing. It is stated that flight tests have proved satisfactory and the instrument, which is simple and robust, is recommended for the private owner. Only one instrument, situated midway between fuselage and wing tip need be fitted.

The second angle of attack indicator tested by the C.A.A. (Wayne University type) depends on the change in pressure distribution on the nose with change in incidence. At any angle of attack there are two points on the leading edge contour, which are at the same pressure as the interior of the wing. With increase in incidence, these points of zero pressure difference travel downwards around the nose in such a manner that the upper portion of the leading edge suffers a pressure reversal from positive to negative, whilst the reverse holds for the lower portion. A diaphragm connected to a point on the upper surface will thus undergo a change in deflection at the angle of attack corresponding to minimum safe flying speed. By utilising a slack diaphragm of rubber-like material sufficient deflection to operate an electrical contact can be obtained with a pressure difference of the order of .015 in. of water. Although slightly more complicated than the Gurley indicator, the instrument is less subject to damage since there are no projecting parts. The sensitivity is slightly greater than that of the Gurley indicator. Both the above angle of attack indicators will obviously only function in the absence of icing, since otherwise the wing contour and hence the calibration changes. Stall warning devices operating under conditions of icing are more difficult to achieve since they will have to respond to changes in the character of the flow over the whole wing surface and will necessitate simultaneous readings of pressure differentials at three or more points situated near the trailing edge. Although promising laboratory experiments have been carried out, this type of indicator still awaits flight tests under actual icing conditions. The fundamental requirement of any stall indicator (pressure differential independent of air speed and function of angle of attack only) appears to be very difficult to achieve under icing conditions, and this may delay the advent of a suitable instrument although urgently needed by civil aviation transport.

Device for Stripping Insulation from Electric Conductors (*D.R.G.M.* 1,504,595). (Der Flieger, Vol. 22, No. 7, July, 1943, pp. 211-212.) (122/11 Germany.)

The stripping of insulation by hand, using a knife, pliers, or similar tools is unsatisfactory, since it takes an appreciable time and fatigues the operator. The alternative of burning off the insulation by means of a red hot wire has also not

proved amenable to mass production conditions. For this reason the Junkers firm have developed a mechanical stripping machine, consisting of a clamping device (upper and lower straight edge) provided with a series of recesses of standard diameter corresponding to the types of cable requiring trimming. Immediately behind the clamp is situated a cutter, consisting of an upper and lower knife which surrounds the cable. The travel of the cutter is controlled by the thickness of the insulation, and after cutting through to the metal strands the knife travels back along the cable, stripping off the insulation automatically.

LIST OF SELECTED TRANSLATIONS.

No. 68.

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Lists of selected translations have appeared in this publication since September, 1938.

TRANSLATION NUMBER AND AUTHOR.	TITLE AND REFERENCE.
AERO AND HYDRODYNAMICS.	
2097 Mangler, W. ...	*Two Remarks on the Schwarz-Christoffel Transformation.* (Z.A.M.M., Vol. 18, No. 4, August, 1938, pp. 251-252.)
2120 Grobner, W... ...	*On an Approximate Method for Determining the Two-Dimensional Potential Flow of a Compressible Fluid.* (L.F.F., Vol. 20, No. 6, 30/6/43, pp. 184-191.)
2122 Pinl, M.	*The Geometrical Interpretation and Transformation of the Fundamental Equation of Two-Dimensional Compressible Potential Flow.* (Z.A.M.M., Vol. 21, No. 2, April, 1941, pp. 80-85.)
AIRCRAFT, AIRSCREWS AND ACCESSORIES.	
2102 Oschatz, H.... ...	*Methods for Balancing Airscrews.* (Luftwissen, Vol. 10, No. 3, March, 1943, pp. 69-73.)
2105 ——	*World's 56 Hours Gliding Record.* (Flugsport, Vol. 35, No. 15, 17/11/43.)
2107 Jorn, R.	*Developments and Problems of the "Canard" Aircraft.* (Flugsport, Vol. 32, No. 26, 24/12/41, pp. 493-496.)
2108 ——	*Automatic Coupling for Helicopter (German Patent 731,109).* (Flugsport, Vol. 35, No. 7, 31/3/43, pp. 9-10.)
ENGINES, FUELS AND ACCESSORIES.	
2093 Roth, J. F.	*The Explosive Properties of Tetranitro-Methane Nitrobenzene Mixtures—A Contribution to the Hydrodynamic Theory of Detonation.* (Z.G.S.S., Vol. 30, Nos. 1-3, Jan.-March, 1941, pp. 4-6, 28-30, 52-55.)
2103 Robotti, A. C. ...	*Prospects of the Modern Engine in Military Aviation.* (Revista Aeronautica, Vol. 17, No. 11, November, 1941, pp. 307-328.)

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
2106	Engel	*Remote Transmission and Recording of Torque, R.P.M. and Performance Measurements Made with an Electric Torque Balance.* (A.T.Z., Vol. 45, No. 7, 1942, pp. 191-192.)
2110	Englische, E. ...	*Lubrication Phenomena Between Piston, Rings and Cylinders.* (Z.V.D.I., Vol. 86, Nos. 7-8, Feb., 1942, p. 116.)
2112	Meyer, J.	*The Question of the Effective Torsional Rigidity in the Torsional Vibration of Crankshafts.* (L.F.F., Vol. 7, No. 2, 20/2/40, pp. 54-55.)

WIRELESS AND ELECTRICITY.

2094	Grosskopf, J. Vogt, K. ...	*Measurement of Ground Conductivity.* (T.F.T., Vol. 29, No. 6, 1940, pp. 164-172.)
2098	Forster, F. ... Stambke, K. ...	*Magnetic Investigation of Internal Stresses in Die-Stretched Nickel Wire.* (Z.f. Metallkunde, Vol. 33, No. 3, March, 1941, pp. 97-104.)
2099	Forster, F. ... Stambke, K. ...	*Magnetic Investigation of Internal Stresses in Die-Drawn Nickel Wires.* (Z.f. Metallkunde, Vol. 33, No. 3, March, 1941, pp. 104-114.)
2101	Tommasi, A. ...	*Concerning the Measurement of Small Time Intervals.* (Alta Frequenza, Vol. 10, No. 6, June, 1941, p. 358.)
2104	Zeitlenok, G. A. Ivanov, A. B. ...	*An Investigation of Certain Types of Parasitic Oscillations in Radio Transmitters.* (Communications Engineering Trades Review, U.S.S.R., No. 7, 1940, pp. 13-28.)
2109	Toniolo-Ferraria ...	*Direct-Reading Meter for Small Time Intervals.* (Alta Frequenza, Vol. 10, No. 3, March, 1941, pp. 179-181.)

MATERIALS AND ELASTICITY.

2121	Rosovin, Z. ... Ivanova, Z. ...	*Investigations on the Structure and Properties of Cellulose and its Ethers.* (J. App. Chem., U.S.S.R., Vol. 14, No. 6, 1941, pp. 834-842.)
2125	Soph, G. ... Frey, W. ...	*Determination of the Number of Passes in Drawing (Nomogram for Finding the Number of Passes for a Given Diameter Ratio).* (Luftwissen, Vol. 16, No. 2, Feb., 1943, p. 43.)
2127	Hencky, H.... ...	*On the Nature of Plastic Deformation.* (Z.V.D.I., Vol. 69, No. 20, 16/5/25, pp. 695-696, and No. 39, 26/9/25, pp. 1253-1254.)

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Strategy and Tactics.

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1	18706	Switzerland ...	*The Effect of Three-Dimensional War.* (G. Daniker, Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, pp. 8-10.)
2	18707	Switzerland ...	*Modern Technical and Tactical Means in Air/Sea Warfare.* (T. Weber, Flugwehr und Technik, Vol. 5, No. 1, Jan.., 1943, pp. 10-14.)
3	18729	Switzerland ...	*The Psychology of Aerial Combat.* (W. Guldimann, Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 285-288.)
4	19017	U.S.A. ...	*Half a Million Planes on Active Service Expected in this Country by* 1950 (*Excerpts from Address*). (C. J. Stanton, U.S. Air Services, Vol. 28, No. 9, Sept., 1943, pp. 16-17.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
5	19147	G.B.	*The Allied Air Pioneers (New Strategical Possibilities with the Advance of the Allies in Southern Italy).* (H. J. A. Wilson, Aeronautics, Vol. 9, No. 4, November, 1943, pp. 28-31.)
6	19150	G.B.	*Swedish View on the Destructive Power of British Bombs.* (Aeronautics, Vol. 9, No. 4, Nov., 1943, p. 38.)
7	19157	G.B.	*Allied Convoy Tactics (Spanish Version).* (Aeronautics, Vol. 9, November, 1943, p. 57.)
8	19170	G.B.	*Powers of Manœuvre.* (F. H. M. Lloyd, Aeronautics, Vol. 9, No. 3, October, 1943, pp. 28-33.)
9	19179	G.B.	*Pattern for Peace (Account of German Evasion of Versailles Treaty and Secret Building of Aircraft by Junkers, etc.).* (H. J. A. Wilson, Aeronautics, Vol. 9, No. 3, October, 1943, pp. 44-49.)
10	19180	G.B.	*The Attack on German Steel (R.A.F. Bombing Offensive and the Organisation of the German Steel Industry).* (H. J. A. Wilson, Aeronautics, Vol. 9, No. 1, August, 1943, pp. 28-31.)
11	19182	France ...	*Anti-Tank Aircraft.* (M. C. Rougeron, Aeronautics, Vol. 9, No. 1, August, 1943, p. 33.)
12	19195	G.B.	*Air Power versus Japan.* (K. Macmillan, Aeronautics, Vol. 9, No. 5, Dec., 1943, pp. 28-33.)
13	19250	G.B.	*Electrical Damage to Berlin.* (Electrical Times, Vol. 105, No. 2,726, 20/1/44, p. 71.)
14	19294	G.B.	*A Numerical Theory of Air Tactics.* (Aeronautics, Vol. 9, No. 6, January, 1944, pp. 28-31.)
15	19298	G.B.	*Airborne War and the Rôle of Airborne Forces.* (Aeronautics, Vol. 9, No. 6, Jan., 1944, pp. 42-43.)
16	19366	G.B.	*Air Observation Post (Rôle of Auster Aircraft in Directing Artillery Fire).* (Flight, Vol. 45, No. 1,832, 3/2/44, pp. 122-124.)
17	19367	G.B.	*Heavy Bombers and Pathfinders.* (N. A. de V. Robertson, Flight, Vol. 45, No. 1,832, 3/2/44, pp. 124-125.)
18	19481	G.B.	*Sound Speed—Ground Speed (Use of Sound Echo for Ascertaining Ground Speed).* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, p. 122.)
19	19615	Canada ...	*Jet Propulsion Seen as a Factor to Influence Air Combat—No. 11.* (P. James, Canadian Aviation, Vol. 16, Nov., 1943, pp. 57-58.)
20	19638	U.S.A. ...	*Line Identification Chart for Showing Markings of American and British Aircraft Lines.* (Aviation Maintenance, Vol. 1, No. 1, December, 1943, pp. 83-86.)
21	19747	Germany ...	*German Crewless Radio-Controlled Bomber.* (Flight, Vol. 45, No. 1,833, 10/2/44, pp. 145-146.)

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22	18687	Switzerland ...	*The Military Importance of Transport Aircraft.* (Flugwehr und Technik, Vol. 5, No. 8, Aug., 1943, p. 205.)
23	18730	Switzerland ...	*Training of German Parachute Troops.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 288-289.)
24	18739	U.S.A. ...	*Flight Training Device "Aerostructor."* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 302.)
25	19022	Canada ...	*A Critical Analysis of Accidents in Flying Training in the R.C.A.F.* (A. Roy Brown, Canadian Aviation, Vol. 16, No. 7, July, 1943, pp. 37-39, 96.)
26	19043	Canada ...	*Training of Ground Crews (St. Thomas School).* (R. A. Keith, Canadian Aviation, Vol. 16, No. 8, Aug., 1943, pp. 75-80, 150.)
27	19052	Canada ...	*Polaroid Provides Blind Flying Aid (a New Method of Teaching and Practising Blind Flying in Daylight).* (Canadian Aviation, Vol. 16, No. 8, Aug., 1943, p. 164.)
28	19055	Canada ...	*Airborne Troops Trained in Canada.* (Canadian Aviation, Vol. 16, No. 9, Sept., 1943, pp. 45-48, 78.)
29	19059	Canada ...	*Split Second Aircraft Recognition (New Instruction Technique).* (Canadian Aviation, Vol. 16, No. 9, Sept., 1943, pp. 64, 79.)
30	19060	Canada ...	*Development of the R.C.A.F.* (S. P. Cromie, Canadian Aviation, Vol. 16, No. 9, Sept., 1943, p. 68.)
31	19184	G.B.	*Gunnery Training for Air Crews (Photos).* (Aeronautics, Vol. 9, No. 1, August, 1943, pp. 42-43.)
32	19192	G.B.	*An Elaborated "Link" Type Trainer (for Simulating Actual Flying Conditions) (Patent).* (Aeronautics, Vol. 9, No. 1, August, 1943, p. 61.)
33	19199	G.B.	*Basic Procedure for Air Pilots (Minimum Information any Pilot must have to Fly any Aeroplane).* (R. G. Worcester, Aeronautics, Vol. 9, No. 5, Dec., 1943, pp. 48-50.)
34	19300	G.B.	*The Air Training Corps (A.T.C.).* (Air Commodore Chamier, Aeronautics, Vol. 9, No. 6, Jan., 1944, pp. 46-48.)
35	19369	G.B.	*Training the Air Bomber (the Air Armament School).* (Flight, Vol. 45, No. 1,832, 3/2/44, pp. 128-129.)
36	19374	G.B.	*Commonwealth Air Transport Policy.* (Aeroplane, Vol. 66, No. 1,705, 28/1/44, p. 94.)
37	19507	U.S.A. ...	*Canada's Training Schools (Combined Training Organisation).* (J. R. Keith, Aviation, Vol. 42, No. 11, November, 1943, pp. 219-221, 278-281.)
38	19508	U.S.A. ...	*Piloting Big Bombers (Building the A.A.F.—Pt. IV).* (Aviation, Vol. 42, No. 11, November, 1943, pp. 223-225.)
39	19927	G.B.	*New U.S. Official Designations for Transports.* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, p. 182.)

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41	19992	U.S.A. ...	*The Army Air Forces (General Arnold's Report* (E. Bramley, American Aviation, Vol. 7, No. 16, 15/1/44, pp. 17, 21-22.)
42	19993	U.S.A. ...	*U.S. Air Forces—Locations and Air Transport Command Routes (M.A.P.).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 17.)

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43	18514	G.B.	*Quick Release Fasteners on German Aircraft* (M.A.P. Reports on Enemy Aircraft, November, 1943, pp. 1-3.)
44	18515	G.B.	*German Cowlings.* (M.A.P. Reports on Enemy Aircraft, November, 1943, pp. 1-4.)
45	18546	G.B.	*New "Exposure Suit" for Ditched Airmen* (Flight, Vol. 45, No. 1,829, 13/1/44, p. 36.)
46	18616	U.S.A. ...	*Italian Captured Material (Artillery and Tanks) (Photos).* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 34-35.)
47	18718	Sweden ...	*New Aircraft Materials (Combined Wood and Steel).* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.)
48	18719	U.S.A. ...	*Vultee Stall Indicator.* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.)
49	18720	U.S.A. ...	*Goodrich Anti-Skid Tyre (Wired Cover).* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.
50	18727	U.S.A. ...	*Koppen "Skyfarer" Simplified Control, No Rudder, Will Not Spin.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 329.)
51	18824	G.B.	*British Reports on German Aeroplanes. IX—German Cowlings.* (Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 2-6.)
52	18825	G.B.	*British Reports on German Aeroplanes. X—German Quick-Release Fasteners.* (Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 6-10.)
53	18908	U.S.A. ...	*Conversion of P-39 Airacobra into a Trainer.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 228.)
54	18911	U.S.A. ...	*The Electrical System of the Lockheed Lightning P-38.* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 244-247.)
55	18918	U.S.A. ...	*The Liberator's New Thermal Anti-Icer (Detail Drawing).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 270-271.)
56	18920	Canada ...	*The Cornelius (Modified Flying Wing Type of Aeroplane with Sharp Forward Sweep of Wings, including Model of Flying Automobile).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 275-278.)
57	18921	U.S.A. ...	*Republic P-47 Thunderbolt Landing Gear (Detail Drawing).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 282-283.)

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59	19054	Canada ...	*Interchangeability—A Feature of Lancaster Design.* (W. Symmons, Canadian Aviation, Vol. 16, No. 8, August, 1943, pp. 66-68, 120.)
60	19061	Canada ...	*New All Wooden Fuselage for the Canadian Anson.* (A. E. Salter, Canadian Aviation, Vol. 16, No. 9, Sept., 1943, pp. 81-92.)
61	19089	U.S.A. ...	*Fully Equipped Pararaft (Photo).* (Industrial and Engineering Chemistry (News Ed.), Vol. 21, No. 22, 25/11/43, p. 1950.)
62	19154	G.B.	*Bomber Refinements (Modifications to Meet New Tactical Requirements).* (Aeronautics, Vol. 9, No. 4, November, 1943, pp. 50-51.)
63	19183	G.B.	*Fighter Size and Performance.* (J. L. Beilschmidt, Aeronautics, Vol. 9, No. 1, August, 1943, pp. 34-41.)
64	19191	G.B.	*Equipment for Recovering Fighters Catapulted from Merchant Vessels (Fairey Patent).* (Aeronautics, Vol. 9, No. 1, August, 1943, pp. 60-61.)
65	19606	U.S.A. ...	*Sea Water De-Salter (Kit Weighs 3½ lbs.).* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 19.)
66	19864	Germany ...	*Peaceful Weapons Utilised on Aircraft.* (Luftwelt, Vol. 10, No. 22, 15/11/43, pp. 430-442.)
67	19991	G.B.	*Structural Features of German Aircraft.* (D. M. A. Leggett and J. H. H. Davison, Preprint of Paper Presented at the Royal Aeronautical Society, 24/2/44, pp. 1-30.)
			Armament of Military Aircraft.
68	18511	U.S.A. ...	*Spinning High Explosive Bomb Casings.* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 71.)
69	18513	U.S.A. ...	*Pocket-Size Machine Gun (M-3 Sub-Machine Gun) (Photo).* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 86.)
70	18638	G.B.	*Guns of* 1943. (Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 37-38.)
71	18640	Germany ...	*Rockets.* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 241-242.)
72	18659	Germany ...	*Munition Supply for Wing Guns* (739,468). (Heinkel, Flugsport, Vol. 35, No. 16, 15/12/43, p. 76.)
73	18692	Switzerland ...	*German Aircraft Machine Gun M.G.* 131 (*Article in French*). (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 68.)
74	18705	Switzerland ...	*British Time Bombs Fitted with Specially Sensitive Fuses (Renders Disposal Difficult).* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 82.)
75	18721	Switzerland ...	*Improving the Piton-Bressant Trajectory Calculation (Conclusion).* (H. Brandli, Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, pp. 313-316 contd.)

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40	19928	G.B.	*B.O.A.C. Returns to Divisional Organisation* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, p. 183.)
41	19992	U.S.A. ...	*The Army Air Forces (General Arnold's Report* (E. Bramley, American Aviation, Vol. 7, No. 10, 15/1/44, pp. 17, 21-22.)
42	19993	U.S.A. ...	*U.S. Air Forces—Locations and Air Transport Command Routes (M.A.P.).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 17.)

Design and Equipment of Military Aircraft.

43	18514	G.B.	*Quick Release Fasteners on German Aircraft* (M.A.P. Reports on Enemy Aircraft, November, 1943, pp. 1-3.)
44	18515	G.B.	*German Cowlings.* (M.A.P. Reports on Enemy Aircraft, November, 1943, pp. 1-4.)
45	18546	G.B.	*New "Exposure Suit" for Ditched Airmen* (Flight, Vol. 45, No. 1,829, 13/1/44, p. 36.)
46	18616	U.S.A. ...	*Italian Captured Material (Artillery and Tanks) (Photos).* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 34-35.)
47	18718	Sweden ...	*New Aircraft Materials (Combined Wood and Steel).* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.)
48	18719	U.S.A. ...	*Vultee Stall Indicator.* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.)
49	18720	U.S.A. ...	*Goodrich Anti-Skid Tyre (Wired Cover).* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.
50	18727	U.S.A. ...	*Koppen "Skyfarer" Simplified Control, No Rudder, Will Not Spin.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 329.)
51	18824	G.B.	*British Reports on German Aeroplanes. IX—German Cowlings.* (Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 2-6.)
52	18825	G.B.	*British Reports on German Aeroplanes. X—German Quick-Release Fasteners.* (Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 6-10.)
53	18908	U.S.A. ...	*Conversion of P-39 Airacobra into a Trainer.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 228.
54	18911	U.S.A. ...	*The Electrical System of the Lockheed Lightning P-38.* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 244-247.)
55	18918	U.S.A. ...	*The Liberator's New Thermal Anti-Icer (Detail Drawing).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 270-271.)
56	18920	Canada ...	*The Cornelius (Modified Flying Wing Type of Aeroplane with Sharp Forward Sweep of Wings, including Model of Flying Automobile).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 275-278.)
57	18921	U.S.A. ...	*Republic P-47 Thunderbolt Landing Gear (Detail Drawing).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 282-283.)

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58	19053	Canada ...	*Crepe Paper as an Emergency Parachute.* (Canadian Aviation, Vol. 16, No. 8, August, 1943, p. 164.)
59	19054	Canada ...	*Interchangeability—A Feature of Lancaster Design.* (W. Symmons, Canadian Aviation, Vol. 16, No. 8, August, 1943, pp. 66-68, 120.)
60	19061	Canada ...	*New All Wooden Fuselage for the Canadian Anson.* (A. E. Salter, Canadian Aviation, Vol. 16, No. 9, Sept., 1943, pp. 81-92.)
61	19089	U.S.A. ...	*Fully Equipped Pararaft (Photo).* (Industrial and Engineering Chemistry (News Ed.), Vol. 21, No. 22, 25/11/43, p. 1950.)
62	19154	G.B.	*Bomber Refinements (Modifications to Meet New Tactical Requirements).* (Aeronautics, Vol. 9, No. 4, November, 1943, pp. 50-51.)
63	19183	G.B.	*Fighter Size and Performance.* (J. L. Beilschmidt, Aeronautics, Vol. 9, No. 1, August, 1943, pp. 34-41.)
64	19191	G.B.	*Equipment for Recovering Fighters Catapulted from Merchant Vessels (Fairey Patent).* (Aeronautics, Vol. 9, No. 1, August, 1943, pp. 60-61.)
65	19606	U.S.A. ...	*Sea Water De-Salter (Kit Weighs 3½ lbs.).* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 19.)
66	19864	Germany ...	*Peaceful Weopons Utilised on Aircraft.* (Luftwelt, Vol. 10, No. 22, 15/11/43, pp. 430-442.)
67	19991	G.B.	*Structural Features of German Aircraft.* (D. M. A. Leggett and J. H. H. Davison, Preprint of Paper Presented at the Royal Aeronautical Society, 24/2/44, pp. 1-30.)
			Armament of Military Aircraft.
68	18511	U.S.A. ...	*Spinning High Explosive Bomb Casings.* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 71.)
69	18513	U.S.A. ...	*Pocket-Size Machine Gun (M-3 Sub-Machine Gun) (Photo).* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 86.)
70	18638	G.B.	*Guns of 1943.* (Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 37-38.)
71	18640	Germany ...	*Rockets.* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 241-242.)
72	18659	Germany ...	*Munition Supply for Wing Guns* (739,468). (Heinkel, Flugsport, Vol. 35, No. 16, 15/12/43, p. 76.)
73	18692	Switzerland ...	*German Aircraft Machine Gun M.G. 131 (Article in French).* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 68.)
74	18705	Switzerland ...	*British Time Bombs Fitted with Specially Sensitive Fuses (Renders Disposal Difficult).* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 82.)
75	18721	Switzerland ...	*Improving the Piton-Bressant Trajectory Calculation (Conclusion).* (H. Brandli, Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, pp. 313-316 contd.)

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76	18731	Switzerland ...	*Some Notes on Improving the Piton-Bressant Method of Trajectory Calculation (Ext. Ballistics).* (H. Brandli, Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 289-293.)
77	18741	U.S.A. ...	*The Mustangs Plastic Bomb Rack.* (K. West, Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 75-77, 170.)
78	18856	G.B.	*Glider Bomb—1917.* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, p. 59.)
79	19025	Canada ...	*Aircraft Machine Gun Turrets (Boulton Paul).* (Canadian Aviation, Vol. 16, No. 7, July, 1943, pp. 46-48, 68-69.)
80	19048	Canada ...	*Cushion for Gun Power (Bell Machine Gun Adaptor).* (Canadian Aviation, Vol. 16, No. 8, August, 1943, p. 112.)
81	19297	G.B.	*Radio Controlled Rockets.* (G. W. Walton, Aeronautics, Vol. 9, No. 6, Jan., 1944, pp. 36-39.)
82	19380	Russia ...	*The Armament of the Tupolev TB-7 (Photo).* (Aeroplane, Vol. 66, No. 1,705, 28/1/44, p. 92.)
83	19495	G.B.	*The Bomb-Aimer.* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, p. 129.)
84	19605	U.S.A. ...	*B-25 Fitted with a 75 mm. Cannon.* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 16.)
85	19625	U.S.A. ...	*Flying Gun Platforms (New Turret Armament).* (Pegasus, Vol. 2, No. 6, December, 1943, pp. 1-4.)
86	19806	U.S.A. ...	*The New 75 mm. Aircraft Cannon.* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, p. 102.)
87	19810	U.S.A. ...	*Stratosphere Range to Test Large Calibre Aircraft Cannon.* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, p. 125.)
88	19870	Germany ...	*Bomb Release Gear for Series Dropping* (738,756, 739,787). (Henschel, Flugsport, Vol. 36, No. 1, 19/1/44, pp. 85-86.)
89	19871	Germany ...	*Electrical Circuit for Operating Bomb Release Gear in Succession* (739,541). (Hakenfelde, Flugsport, Vol. 36, No. 1, 19/1/44, p. 85.)
			Military Types of Aircraft (G.B.).
90	18547	G.B.	*Jet Propelled Aircraft—Great British Achievement.* (Flight, Vol. 45, No. 1,829, 13/1/44, pp. 27-28, 37-40.)
91	18701	G.B.	*Armstrong Whitworth Albermarle I and II (Use of Wood and Steel).* (M.A.P. Official Release, 27/1/44, pp. 1-8.)
92	18702	G.B.	*Fairey Fulmar Two-Seat Fighter.* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 81.)
93	18703	G.B.	*D.H. 98 Mosquito.* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 81-82.)
94	18734	G.B.	*The Avro Lancaster.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 297.)
95	18735	G.B.	*Handley Page Halifax.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 298.)
96	18863	G.B.	*The Miles M. 28 for Air-Taxi Service (Photo).* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, p. 76.)

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97	18956	G.B. ...	...	*The Hawker Typhoon (Mark 1A and 1B).* (G. M. Poulsen, Flight, Vol. 45, No. 1,830, 20/1/43, p. 61.)
98	18958	G.B. ... U.S.A.	...	*Aircraft in Flying Attitudes (Beaufighter, Douglas, P. 70).* (Flight, Vol. 45, No. 1,830, 20/1/43, p. b.)
99	19149	G.B. ...	...	*The Typhoon and Hurricane II.D (Photos).* (Aeronautics, Vol. 9, No. 4, Nov., 1943, pp. 34-37.)
100	19378	G.B. ...	...	*The Fairey Albacore and Swordfish (Recognition Details).* (Aeroplane, Vol. 66, No. 1,705, 28/1/44, p. 103.)
101	19381	G.B. ...	...	*The Armstrong-Whitworth Albemarle Now Used as a Glider Tug (Tricycle Undercarriage).* (Flight, Vol. 45, No. 1,831, 27/1/44, pp. 82, 87-91.)
102	19383	G.B. ... Germany	...	*Aircraft in Flying Attitudes (Typhoon 1B, Lightning, Hurricane IID, Henschel HS 129).* (Flight, Vol. 45, No. 1,831, 27/1/44, pp. 92-93.)
103	19509	G.B. ...	...	*Avro Anson V Redesigned as Trainer for the R.A.F. and R.C.A.F.* (Aviation, Vol. 42, No. 11, Nov., 1944, p. 226.)
104	19619	Canada	...	*The Cornelius Flying Wing, No. 11.* (Canadian Aviation, Vol. 16, Nov., 1943, p. 82.)
105	19749	G.B. ...	...	*Aircraft in Flying Attitudes (Lancaster II, Flying Fortress II. Liberator IV, Stirling).* (Flight, Vol. 45, No. 1,833, 10/2/44, pp. 150-151.)
106	19772	G.B. ...	...	*The Hawker Typhoon (Construction Details).* (Aeroplane, Vol. 66, No. 1,707, 11/2/44, pp. 153-161.)
107	19924	Australia	...	*The Australian Boomerang.* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, p. 176.)
				Military Types of Aircraft (U.S.A.).
108	18543	U.S.A.	...	*Latest Version of the Mustang (P-51B).* (Flight, Vol. 45, No. 1,829, 13/1/44, p. 32.)
109	18549	U.S.A.	...	*Airacobra and Thunderbolt (Recognition Details).* (Flight, Vol. 45, No. 1,829, 13/1/44, pp. 42-43.)
110	18591	U.S.A.	...	*The Douglas Nighthawk (Recognition Details).* (Aeroplane, Vol. 66, No. 1,703, 14/1/44, p. 47.)
111	18648	U.S.A.	...	*Martin Flying Boat XPB 2M-1 "Mars" (Photograph).* (Flugsport, Vol. 35, No. 16, 15/12/43, p. 251.)
112	18709	U.S.A.	...	*Martin 187 Baltimore.* (Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, pp. 23-28.)
113	18724	U.S.A.	...	*Martin B-26 "Marauder."* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 328.)
114	18736	U.S.A.	...	*Republic P47 Thunderbolt.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 299.)
115	18857	U.S.A.	...	*North American P-51B Mustang Fitted with Long Range Fuel Tanks.* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, pp. 60, 63.)
116	18861	U.S.A.	...	*The Grumman Avenger (Photographs).* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, pp. 70-71.)
117	19171	U.S.A.	...	*North American B.25 (Mitchell) (Photos).* (Aeronautics, Vol. 9, No. 3, October, 1943, pp. 34-37.)

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118	19364	U.S.A. G.B.	... *Aircraft in Flying Attitudes (Mitchell, Wellington III, Marauder and Do. 217E).* (Flight, Vol. 45, No. 1,832, 3/2/44, p. a-b.)
119	19382	U.S.A.	... *Long Range Mustang.* (Flight, Vol. 45, No. 1,831, 27/1/44, p. 91.)
120	19914	U.S.A.	... *Improved Long Range P-38 Lockheed Lightning Fighter.* (Flight, Vol. 45, No. 1,834, 17/2/44, p. 170.)
121	19918	U.S.A.	... *Aircraft in Flying Attitudes (Helldiver, Vengeance, Corsair, Dauntless).* (Flight, Vol. 45, No. 1,834, 17/2/44, pp. a-b.)
122	19994	U.S.A.	... *Jet Propulsion Fighter Plane (Official Release).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 19.)
			Military Types of Aircraft (U.S.S.R.).
123	18860	U.S.S.R.	... *Aeroplanes of the Red Air Forces—IV (Silhouettes).* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, p. 67.)
124	19309	U.S.S.R.	... *Russian Dive Bomber—Petlyakov II (Photo).* (Aeronautics, Vol. 9, No. 6, Jan., 1944, p. 71.)
125	19494	U.S.S.R.	... *Aeroplanes of the Red Air Forces—V.* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, p. 128.)
126	19745	U.S.S.R.	... *A Russian Dive Bomber PE-2.* (Flight, Vol. 45, No. 1,833, 10/2/44, pp. 142-144.)
127	19929	U.S.S.R.	... *Aeroplanes of the Red Air Forces—VI.* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, p. 184.)
			Military Types of Aircraft (Germany).
128	18550	Germany	... *Me. 109G and F.W. 190A-4 (Recognition Details).* (Flight, Vol. 45, No. 1,829, 13/1/44, pp. 42-43.)
129	18643	Germany	... *Bucker Primary Trainer Bu 182 "Kornett."* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 243-245.)
130	18644	Germany	... *Gotha GO. 146 Twin-Engined Light Transport.* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 245-247.)
131	18645	Germany	... *Messerschmitt Me. 323 Large Transport "Gigant."* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 247-248.)
132	18725	Germany	... *Messerschmitt Me. 210.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 328.)
133	18726	Germany	... *Henschel Hs. 129.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 329.)
134	18737	Germany	... *Focke Wulf F.W. 190.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 299-300.)
135	18957	Germany	... *Aircraft in Flying Attitudes (Ju. 288, Me. 210).* (Flight, Vol. 45, No. 1,830, 20/1/43, p. a.)
136	19372	Germany	... *Captured Fieseler Storch Observation Aircraft (Photo).* (Flight, Vol. 45, No. 1,832, 3/2/44, p. 112.)
137	19773	Germany	... *Me. 110 (Recognition Details).* (Aeroplane, Vol. 66, No. 1,707, 11/2/44, pp. 162-163.)
138	19774	Germany	... *Me. 210 (Recognition Details).* (Aeroplane, Vol. 66, No. 1,707, 11/2/44, pp. 162-163.)
139	19896	Germany	... *Six-Engined Transport Me. 323 "Gigant."* (Flugsport, Vol. 35, No. 15, 17/11/43, pp. 224-225.)

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140	19922	Germany ...	*The Messerschmitt Me. 323 (Various Versions).* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, pp. 175, 180.)
			Military Types of Aircraft (Italy).
141	18539	Italy	*Caproni-Campini C.C. 2 Jet Propelled Aeroplane (Photo).* (Aeroplane, Vol. 66, No. 1,703, 14/1/44, p. 33.)
142	18710	Italy	*Caproni Ca. 313 Light Bomber.* (Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, p. 28.)
143	19746	Italy	*Piaggio 108 (Four-Engined Bomber) PE-2.* (Flight, Vol. 45, No. 1,833, 10/2/44, p. 144.)
			Military Types of Aircraft (Japan).
144	19296	Japan ...	*Two Japanese Aircraft (Mitsubishi 01 and S-003).* (Aeronautics, Vol. 9, No. 6, Jan., 1944, p. 33.)
			Military Types of Aircraft (Rumania).
145	18963	Rumania ...	*IAR. 80—Rumanian Single-Seater Fighter.* (Flight, Vol. 45, No. 1,830, 20/1/43, p. 72.)
			Gliders and Gliding.
146	18641	Germany ...	*Cargo Sail Plane DFS. 230 A1.* (Flugsport, Vol. 35, No. 16, 15/12/43, p. 242.)
147	18642	Germany ...	*Cargo Sail Plane Gotha Go. 242.* (Flugsport, Vol. 35, No. 16, 15/12/43, pp. 242-243.)
148	18647	Germany ...	*Automatic Release Gear for Glider Launching Rope (Winch Starts).* (Flugsport, Vol. 35, No. 16, 15/12/43, p. 251.)
149	18649	Germany ...	*Standard Specification Sheets for Sail Plane Components: No. 17, Winged Inspection Cover Plate; No. 18, Weak Link; No. 19, Anchoring Hook; No. 20, Tow Rope.* (Flugsport, Vol. 35, No. 16, 15/12/43, p. 252.)
150	18712	Switzerland ...	*Gliders as a War Weapon.* (A. Baltensweiler, Flugwehr und Technik, Vol. 5, No. 7, July, 1943, pp. 180-182.)
151	19045	Canada ...	*Gliding to Victory.* (K. Edgar, Canadian Aviation, Vol. 16, No. 8, Aug., 1943, pp. 90-92.)
152	19308	G.B.	*Motor-Assisted Gliders.* (Aeronautics, Vol. 9, No. 6, Jan., 1944, p. 66.)
153	19371	U.S.A. ...	*New American YCG-13 Glider (Photo).* (Flight, Vol. 45, No. 1,832, 3/2/44, p. 132.)
154	19867	Germany ...	*Sailing Flight as the Basis of Pre-Military Training for the German Air Forces.* (Luftwelt, Vol. 10, No. 22, 15/11/43, pp. 444-445.)
155	19895	Germany ...	*Transport Gliders (D.F.S. Go. 242).* (Flugsport, Vol. 35, No. 15, 17/11/43, pp. 221-224.)
156	19899	Germany ...	*World's 56 Hours' Gliding Record—Pilot's Report.* (Flugsport, Vol. 35, No. 15, 17/11/43, pp. 234-240.) (Translation available.)
			Fleet Air Arm, Balloons.
157	18635	G.B.	*Naval Construction in 1943—No. 2.* (F. McMurtrie, Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 29-31.)

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158	18639	G.B.	*Battleships and Carriers.* (E. A. Lloyd, Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 33-34.)
159	18716	Switzerland ...	*Incendiary Balloons Found in Switzerland (Instructions for Handling).* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 187.)
160	18841	U.S.A. ...	*Barrage Balloons—Use of Plastic Materials (Gas Release Valve Parts).* (Modern Plastics, Vol. 21, No. 2, October, 1943, pp. 69-71.)
161	19021	U.S.A. ...	*Navy Freight on Wings (Account of the Naval Air Transport Service—N.A.T.S.).* (J. B. Goodman, U.S. Air Services, Vol. 28, No. 8, Aug., 1943, pp. 14-15, 42.)
162	19155	G.B.	*Midget Shipborne Fighters.* (Aeronautics, Vol. 9, No. 4, November, 1943, p. 53.)
163	19362	G.B.	*Backbone of the Fleet—Value of the Carrier and Torpedo-Fighter.* (B. J. Rurren, Flight, Vol. 45, No. 1,832, 3/2/44, pp. 115-119.)
164	19493	G.B.	*The Escort Carrier (Photos).* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, pp. 126-127.)
			Maintenance.
165	18593	G.B.	*Aircraft Maintenance in Wartime.* (Aeroplane, Vol. 66, No. 1,703, 14/1/44, pp. 44-45.)
166	18914	U.S.A. ...	*Maintenance and Repair of Metal Aircraft.* (J. Lux, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 254-258, 451.)
167	19020	U.S.A. ...	*The Importance of Parachute Maintenance.* (J. Floyd Smith, U.S. Air Services, Vol. 28, No. 8, Aug., 1943, pp. 30-34.)
168	19375	G.B.	*Maintenance Command of the R.A.F.* (Aeroplane, Vol. 66, No. 1,705, 28/1/44, pp. 95-97.)
169	19506	U.S.A. ...	*Maintenance Equipment (Propeller Stand, Brake Assembly Tester, Engine Overhaul Stand, Centrifugal Sand Spreader for Sanding Icy Ramps).* (Aviation, Vol. 42, No. 11, November, 1943, pp. 211-215.)
170	19802	U.S.A. ...	*Overseas Repair of Military Types.* (C. W. Vogt, Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, pp. 80-82.)
171	19805	U.S.A. ...	*Civilian Automotive Advisers (Motor Specialists Aid the Army's Maintenance Training Programme).* (J. A. Bell, Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, pp. 99-101.)
172	19881	Germany ...	*Fault Detector for Hydraulic Systems.* (Junkers, Flugsport, Vol. 36, No. 1, 19/1/44, pp. 5-6.)
			A.A. and A.R.P.
173	18594	U.S.A. ...	*Anti-Aircraft with Armoured Divisions.* (L. A. Long, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 5-7.)
174	18595	U.S.A. ...	*Anti-Aircraft Target Practice.* (Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 13-15.)
175	18596	U.S.A. ...	*Airborne A.A. Batteries.* (J. J. Stark, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 22-23.)

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176	18598	Germany ...	*German Doctrine: A.A. Defence (from General Von Cochenhausen's Tactical Handbook for Troop Commander).* (Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 28-30.)
177	18601	U.S.A. ...	*The A.A. Officer Candidate School (General Organisation, etc.).* (J. E. Aber, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 40-42.)
178	18608	U.S.A. ...	*The Bazooka—New Anti-Tank Gun.* (Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, p. 70.)
179	18609	U.S.A. ...	*Berlin's A.A. Towers.* (Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, p. 72.)
180	18610	U.S.A. ...	*Russian A.A. Weapons.* (Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, p. 72.)
181	18618	U.S.A. ...	*Nebelwerfer 41 (Fog Thrower).* (W. Ley, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 42-43.)
182	18625	U.S.A. ...	*Small Arms Against Planes.* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, p. 63.)
183	18689	Switzerland ...	*A.A. Searchlights (Contd.).* (H. Born, Flugwehr und Technik, Vol. 5, No. 7, March, 1943, pp. 69-73.)
184	18693	Switzerland ...	*A.A. Searchlight Batteries.* (H. Born, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 69-72.)
85	18722	Switzerland ...	*Optical Training Methods for Controlling the Effectiveness of A.A. Fire.* (H. Baasch, Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, pp. 316-321.)
186	18732	Switzerland ...	*The Training of A.A. Gun Crews.* (W. M. Graf, Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 293-294.)
187	18715	Switzerland ...	*The Utilisation of Small Calibre A.A. Guns.* (H. Born, Flugwehr und Technik, Vol. 5, No. 7, July, 1943, pp. 185-187.)
188	19804	U.S.A. ...	*Anti-Aircraft Artillery.* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, pp. 87-96.)
189	19809	U.S.A. ...	*A New Anti-Aircraft Gun Electrical Director—M9.* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, p. 123.)
190	19813	U.S.A. ...	*Recent German Weapons (Rocket Guns, etc.).* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, pp. 128-129.)
191	19919	G.B.	*Flak (Survey of German Equipment A.A. Organisation and Tactics).* (V. L. Gruberg, Flight, Vol. 45, No. 1,834, 17/2/44, pp. 177-181.)
192	19669	Germany ...	*Protection Against Bomb Splinters (German A.R.P. Regulations for Design of Concrete and Brick Walls).* (Z.V.D.I., Vol. 87, No. 5-6, 6/2/43, p. 87.)

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193	12725	Germany ...	*The Heat Transfer to a Plate in Flow at High Speed.* (E. Eckert and O. Drewitz, Tech. Memo. 1,045, May-June, 1940.)

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194	18575	G.B.	*Experimental Fluid Dynamics Applied to Engineering Practice—II (Fluid Flow in Pipes, Wind Action on Buildings and Tidal Flow).* (G. A. Hankin, Mechanical World, Vol. 114, No. 2,969, 26/11/43, pp. 628-633.)
195	18697	Switzerland ...	*Wind Tunnel Tests on Bird Models Made of Plaster (Peewit Gull) (Digest).* (F. Feldmann, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 78.)
196	18903	U.S.A. ...	*New Wind Tunnel at Wright Field (with Air Velocity Approaching the Speed of Sound).* (N. E. Hopkins, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 193-196, 294.)
197	19002	U.S.A. ...	*Turbulent Friction in the Boundary Layer of a Flat Plate in a Two-Dimensional Compressible Flow at High Speeds.* (F. Frankl and V. Voishel, N.A.C.A. Technical Memo. No. 1,053, Dec., 1943, pp. 1-16.)
198	19072	G.B.	*Flow States in Emergent Gas Streams.* (J. E. Garside and others, Nature, Vol. 152, No. 3,860, 25/12/43, p. 748.)
199	19370	G.B.	*Possibilities in Boundary Layer Control.* (Flight, Vol. 45, No. 1,832, 3/2/44, p. 130.)
200	19680	Germany ...	*The Theory of the Steady Compression Shock.* (Z.V.D.I., Vol. 87, No. 51-52, 25/12/43, pp. 818-819.)
202	19710	U.S.A. ...	*Aeronautical Index for 1939 (a Subject and Author Index to Aeronautical Periodicals and Technical Reports).* (Institute of Aeronautical Sciences, 1943, pp. 1-315.)
203	19727	G.B.	*The Influence of Reynolds Number at High Mach Numbers.* (A. Ferri, J. Roy. Aeronaut. Soc., Vol. 48, No. 398, Feb., 1944, pp. 45-48.)
204	19869	U.S.A. ...	*Heat Transfer and Hydraulic Flow Resistance for Streams of High Velocity.* (J. of Technical Physics, U.S.S.R., Vol. 9, No. 9, 1939, pp. 808-818.) (Available as R.T.P. Translation T.M. 1,054.) (V. L. Lelchuk, N.A.C.A. Tech. Memo. No. 1,054, 1943.)
205	19882	Germany ...	*Influence of Re on M as Shown by Experiments on Spheres and Cylinders.* (Digest of Atti di Guidonia 67-69.) (Profile series No. 39.) (H. O. Nicolaus, Flugsport, Vol. 36, No. 1, 19/1/44, pp. 157-160.)
206	19920	G.B.	*Shock Waves at Sonic Speeds (Abstract).* (W. F. Hilton, Flight, Vol. 45, No. 1,834, 17/2/44, p. 182.)

AIRCRAFT, AIRSCREWS AND ACCESSORIES.

Airlines and Civil Air Transport.

207	18525	U.S.A. ...	*Airways for Peace (Survey of International Air Transport Problem).* (Edward Warner, Foreign Affairs, Vol. 22, No. 1, Oct., 1943, pp. 11-27.)

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208	18539	U.S.A. ...	*Post-War Private Flying.* (J. H. Geisse, S.A.E. Preprints, 10-14/1/44, pp. 1-20.)
209	18569	G.B.	*Post-War Transport in Great Britain.* (B. D. Richards, Mechanical World, Vol. 114, No. 2,969, 26/11/43, pp. 614-615.)
210	18586	G.B.	*American Air Transport Policy.* (W. A. M. Burden, Aeroplane, Vol. 66, No. 1,703, 14/1/44, p. 30.)
211	19023	Canada ...	*Growth of Air Mail Services in Canada.* (F. H. Ellis, Canadian Aviation, Vol. 16, No. 7, July, 1943, pp. 41-44, 98.)
212	19034	Canada ...	*Canada's Post-War Air Policy.* (Canadian Aviation, Vol. 16, No. 5, May, 1943, pp. 76-78, 116.)
213	19046	Canada ...	*Canada's Air Future.* (C. H. Dickins, Canadian Aviation, Vol. 16, No. 8, Aug., 1943, pp. 100-104.)
214	19200	G.B.	*Indian Civil Aviation.* (Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 52.)
215	19289	G.B.	*Post-War Transport in Great Britain.* (D. B. Richards, Civil Engineering, Vol. 38, No. 450, Jan., 1944, pp. 266-267.)
216	19293	G.B.	*Flying Boats in Post-War Aviation.* (O. Stewart, Aeronautics, Vol. 9, No. 6, January, 1944, pp. 27, 51-53.)
217	19497	G.B.	*China's Life-Line (the Air Route from Bengal to China).* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, p. 132.)
218	19503	U.S.A. ...	*Britain's Pioneer Work in the Development of African Air Routes.* (Aviation, Vol. 42, No. 11, November, 1944, pp. 196-197, 281-290.)
219	19775	G.B.	*The Future of Air Transport in Europe—I.* (General M. Valin, Aeroplane, Vol. 66, No. 1,707, 11/2/44, pp. 165-166.)
220	19836	U.S.A. ...	*The Philosophy of Aviation.* (R. S. Damon, Mechanical Engineering, Vol. 66, No. 1, Jan., 1944, pp. 13-14, 71.)

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221	18512	U.S.A. ...	*Nash-Kelvinator Sikorsky Helicopter (Photo).* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 78.)
222	18646	Germany ...	*Horten Va. Tailless Aircraft Utilising Phenolic Resins as Structural Material (Engine Bearers and Undercarriages Steel Tubing).* (Horten, Flugsport, Vol. 35, No. 16, 15/12/43, pp. 249-251.)
223	18650	Germany ...	*Horten IV Tailless Glider (Photograph Showing Prone Position of Pilot).* (Flugsport, Vol. 35, No. 16, 15/12/43, p. 259.)
224	19033	Canada ...	*V.S. 300 Helicopter.* (Canadian Aviation, Vol. 16, No. 5, May, 1943, pp. 62-66, 120.)
225	19057	Canada ...	*Powered Gliders—Sky Freighters of the Future.* (K. Edger, Canadian Aviation, Vol. 16, No. 9, Sept., 1943, pp. 52-53.)
226	19174	G.B.	*A Successful Rotating Wing Aircraft (Sikorsky).* (Aeronautics, Vol. 9, No. 3, October, 1943, p. 57.)

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227	19197	G.B.	...	*Tri-Float Seaplanes (Vought-Sikorsky Kingfisher).* (Aeronautics, Vol. 9, No. 5, Dec., 1943, pp. 34-35.)
228	19379	G.B.	...	*The Avro York.* (Aeroplane, Vol. 66, No. 1,705, 28/1/44, pp. 105-106.)
229	19510	U.S.A.	...	*PV-2 Helicopter Makes First Public Flight.* (Aviation, Vol. 42, No. 11, November, 1943, p. 229.)
230	19750	G.B.	...	*Flying Boats.* (A. Gouge, Flight, Vol. 45, No. 1,833, 10/2/44, pp. 152-153.)
231	19776	France	...	*Bloch 161 and 220 Air Liners (Photos).* (Aeroplane, Vol. 66, No. 1,707, 11/2/44, p. 146.)
232	19879	Germany	...	*British and American Cargo Gliders.* (Flugsport, Vol. 36, No. 1, 19/1/44, pp. 2-4.)
233	19897	Germany	...	*Blohm and Voss B.V. 138 Long Range Flying Boat.* (Flugsport, Vol. 35, No. 15, 17/11/43, pp. 225-226.)

General Design.

234	18548	G.B.	...	*Weight Estimating.* (L. W. Rosenthal, Flight, Vol. 45, No. 1,829, 13/1/44, p. 41.)
235	18556	G.B.	...	*Approximate Solution for Tapered Pin-Ended Struts.* (H. Templeton, Journal of the Royal Aeronautical Society, Vol. 48, No. 397, January, 1944, pp. 6-11.)
236	18828	G.B.	...	*Charts for the Determination of the Lateral and Longitudinal Quarter Mean Chord Position for Wings with a Parallel Centre Section and Tapering Outer Section.* (H. Roberts, Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 15-17.)
237	1887	U.S.A.	...	*Aircraft Design Considerations (Study of High Strength Plastics as Structural Material for Use in Aircraft Stressed Parts).* (H. R. Gardon, Modern Plastics, Vol. 21, No. 1, Sept., 1943, pp. 101-110, 142-152.)
238	18902	U.S.A.	...	*Use of Wood in Aircraft Design and Construction —Part I.* (J. J. Wallace, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 190-191, 284.)
239	18913	U.S.A.	...	*Weight Control in Specification Writing—Part I.* (J. E. Ayers, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 251-252.)
240	19051	Canada	...	*Standard Sizes of Aircraft Tubing.* (Canadian Aviation, Vol. 16, No. 8, Aug., 1943, p. 140.)
241	19159	G.B.	...	*Plane Vans (Detachable Fuselage).* (Aeronautics, Vol. 9, No. 4, November, 1943, p. 68.)
242	19194	G.B.	...	*Structural Integration (Pertinent Criticisms of Modern Aircraft Design).* (Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 27.)
243	19255	U.S.A.	...	*Aircraft Electric Remote Controls.* (W. P. Lear, S.A.E. Preprints, 16/4/43.)
244	19256	U.S.A.	...	*Hydraulic Electric Remote Controls.* (W. C. Trautman, S.A.E. Preprints, 16/4/43.)

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245	19257	U.S.A. ...	*Aircraft Hydraulic Remote Controls.* (J. W. Kelly, S.A.E. Preprints, 16/4/43.)
246	19305	G.B.	*Standardised Flight Controls (General Aircraft, Ltd., Patent).* (Aeronautics, Vol. 9, No. 6, Jan., 1944, pp. 62-63.)
247	19388	G.B.	*Colour and Design in Civil Aviation.* (Flight, Vol. 45, No. 1,831, 27/1/44, p. 104.)
248	19471	U.S.A. ...	*Deficiencies of Converted Passenger Aeroplanes for Cargo Transport and Operating Requirements.* (C. Froesch, S.A.E. Journal, Vol. 51, No. 12, December, 1943, pp. 432-438.)
249	19477	U.S.A. ...	*Some Tactical Considerations in Aircraft Design (Summary of Paper).* (F. O. Carroll, S.A.E. Journal, Vol. 51, No. 12, December, 1943, pp. 33, 35-36.)
250	19916	G.B.	*Tail of Campini Jet Propelled Monoplane is Completely Detachable (Photo).* (Flight, Vol. 45, No. 1,834, 17/2/44, p. 172.)
			Performance (Calculations and Testing).
251	18540	U.S.A. ...	*Structural Flight Research (Determination of Static and Manœuvring Loads, etc.).* (W. L. Howland, S.A.E. Preprints, 10-14/1/44, pp. 1-10.)
252	18557	Germany ...	*Comparison of Various Methods for Determining Flight Speed at Great Altitudes.* (R.T.P.3 Translation No. 1,797.) (R. Schmidt, Journal of the Royal Aeronautical Society, Vol. 48, No. 397, January, 1944, pp. 12-23.)
253	18673	Germany ...	*A New Low Temperature Test Chamber (Temperatures Down to −115°C.) (Digest).* (From Zeitschrift für die gesamte Kälte-Industrie, Vol. 50, Nos. 5-6, May-June, 1943, pp. 57-62.) (H. Glaser, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 343-347.)
254	18698	Switzerland ...	*Some Simplified Methods for Determining Diving Speeds (Digest).* (J. Patry, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 78.)
255	18807	U.S.A. ...	*Performance Calculations (Study of Drag).* (M. M. Munk, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 160-162, 304-320.)
256	19018	U.S.A. ...	*Record-Breaking Non-Stop Flight by Gliders.* (U.S. Air Services, Vol. 28, No. 9, Sept., 1943, p. 38.)
257	19036	Canada ...	*Atlantic Speed Records Set Up by Ferry Command Planes.* (Canadian Aviation, Vol. 16, No. 5, May, 1943, p. 88.)
258	19185	G.B.	*Initial Performance Testing.* (R. G. Worcester, Aeronautics, Vol. 9, Nos. 4-6, August, 1943, pp. 44-46.)
259	19883	Germany ...	*Competition for Engine Driven Model Aircraft (List of Regulations).* (Flugsport, Vol. 36, No. 1, 19/1/44, pp. 15-16.)
260	19917	G.B.	*Flight Testing Methods (Abstract of Paper to R. Aer. Society).* (E. T. Jones, Flight, Vol. 45, No. 1,834, 17/2/44, pp. 175-176.)

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			Stability, Control.
261	18690	Switzerland ...	*The Take-off of Heavily Loaded Aircraft.* (H. L. Studer and F. Widmer, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 75-77.)
262	18694	Switzerland ...	*The Take-off of Heavily Loaded Aircraft.* (H. L. Studer and F. Widmer, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 75-77.)
263	18708	Switzerland ...	*Wing Forces Due to Torsion (Deformation of Section).* (A. Manser, Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, pp. 21-23.)
264	19027	Canada ...	*Detectives of Flutter (Account of Research Carried Out by the Glenn L. Martin Co.).* (Canadian Aviation, Vol. 16, No. 7, July, 1943, pp. 64-69.)
265	19146	G.B.	*The Flutter Problem (Some Early Attempts at Prevention).* (Aeronautics, Vol. 9, No. 4, November, 1943, p. 27.)
266	19860	Canada ...	*High Speed Stall.* (L. Sloan, Canadian Aviation, Vol. 16, No. 12, Dec., 1943, pp. 86-88.)
			General Equipment.
267	18844	U.S.A. ...	*Supplementary Fuel Tanks (Made of Phenolic Sisal).* (Modern Plastics, Vol. 21, No. 2, October, 1943, p. 78.)
268	18845	U.S.A. ...	*Lightweight Hinge for Aircraft (Plastic).* (Modern Plastics, Vol. 21, No. 2, October, 1943, p. 79.)
269	18847	U.S.A. ...	*Portable Fluorescent Extension Lamp for Illuminating Interior Installations in Modern Planes (Use of Plastics).* (E. P. Louger, Modern Plastics, Vol. 21, No. 2, October, 1943, pp. 83, 144.)
270	18854	U.S.A. ...	*Captured Enemy Material (Use of Plastics in A.A. Equipment, Guns, etc.).* (Modern Plastics, Vol. 21, No. 2, Oct., 1943, pp. 80, 130.)
271	18898	U.S.A. ...	*Parallel Operation of Aeroplane Alternators.* (D. W. Exner, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 172-174, 298-304.)
272	19324	G.B.	*Anti-Vibration Foundation for Air Compressor.* (Machinery, Vol. 63, No. 1,627, 16/12/43, pp. 678-679.)
273	19609	U.S.A. ...	*New Aircraft Heater for High Altitude Flying.* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 72.)
			Propellers.
274	19306	G.B.	*A Sheet Metal Airscrew Blade (Constant Speed Airscrews, Ltd., Patent).* (Aeronautics, Vol. 9, No. 6, Jan., 1944, p. 63.)
275	19667	Germany ...	*Variable Pitch Propeller for Large Ships.* (Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, p. 86.)
276	19884	Germany ...	*Compressed Wooden Airscrew Blades* (728,750). (Heine, Flugsport, Vol. 36, No. 1, 19/1/44, p. 81.)
277	19885	Germany ...	*Constant Speed Varrell Pitch Airscrew Mechanism, including Brake Operation* (738,969). (Junkers, Flugsport, Vol. 36, No. 1, 19/1/44, p. 81.)

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278	19886	Germany ...	*Epicyclic Gear for Airscrew Blades* (739,833). (V.D.M., Flugsport, Vol. 36, No. 1, 19/1/44, p. 81.)
279	19887	Germany ...	*Hydraulic V.P. Airscrew Mechanism* (739,218). (Junkers, Flugsport, Vol. 36, No. 1, 19/1/44, p. 82.)
280	19888	Germany ..	*Blade Stops for Hydraulically Operated V.P. Airscrew* (739,834). (V.D.M., Flugsport, Vol. 36, No. 1, 19/1/44, p. 82.)
281	19889	Germany ...	*Cooling Air Intake Control for Air-Cooled Engine Operating V.P. Airscrew* (739,719). (B.M.W., Flugsport, Vol. 36, No. 1, 19/1/44, pp. 82-83.)
282	19894	Germany ...	*Utilising Propeller Inertia for Starting Up Aero Engine* (738,877). (D.B., Flugsport, Vol. 36, No. 1, 19/1/44, pp. 84-85.)
283	19907	Germany ...	*Automatic Reverse Pitch Propeller Braking Operated by Ground Contact Pressure* (736,112). (Heinkel, Flugsport, Vol. 35, No. 15, 17/11/43, pp. 70-71.)
284	20057	Switzerland ...	*Note on "Use of Propeller as a Brake."* (J. Ackeret, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 83.)
			Cockpits, Cabins.
285	18849	U.S.A. ...	*Transparent Enclosures in Aircraft.* (O. E. Brown and W. N. Arata, Modern Plastics, Vol. 21, No. 2, Oct., 1943, pp. 87-93, 140.)
286	19176	G.B.	*Pressure Cabin (Bendix Patent).* (Aeronautics, Vol. 9, No. 3, October, 1943, pp. 58-59.)
287	19203	G.B.	*A Gallery of Cockpits (Photos).* (Aeronautics, Vol. 9, No. 5, Dec., 1943, pp. 58-59.)
			Wings, Flaps, etc.
288	18651	Germany ...	*Retractable and Rotatable High Lift Flap* (738,636). (Arado, Flugsport, Vol. 35, No. 16, 15/12/43, p. 75.)
289	18665	Germany ...	*Aerodynamic Wing Brake* (715,740). (Messerschmitt, Flugsport, Vol. 35, No. 16, 15/12/43, p. 80.)
290	19204	G.B.	*The Youngman Wing Flap (Fairey Patent).* (Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 60.)
291	19908	Germany ..	*Combined Diving Brake and Landing Flap* (737,178). (D.F.S., Flugsport, Vol. 35, No. 15, 17/11/43, p. 71.)
292	19909	Germany ...	*Diving Brake Consisting of Staggered Prongs* (737,445). (Arado, Flugsport, Vol. 35, No. 15, 17/11/43, p. 71.)
			Landing Gear.
293	18552	G.B.	*Tricycle Landing Gears—Review of Design and Performance Criteria.* (Flight, Vol. 45, No. 1,829, 13/1/44, pp. 48-49.)
294	18660	Germany ...	*Spring Legs and Shock Absorbers* (739,677-739,678). (Elektron, Flugsport, Vol. 35, No. 16, 15/12/43, p. 76.)

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295	18661	Germany	...	*Spring Legs* (740,079). (Messerschmitt, Flugsport, Vol. 35, No. 16, 15/12/43, p. 78.)
296	18662	Germany	...	*Retractable Undercarriage* (739,679). (Henschel, Flugsport, Vol. 35, No. 16, 15/12/43, pp. 78-79.)
297	18663	Germany	...	*Retractable Undercarriage* (739,680). (Messerschmitt, Flugsport, Vol. 35, No. 16, 15/12/43, p. 79.)
298	18664	Germany	...	*Jettisonable Undercarriages* (*Flexible Wheel Connection*) (740,220). (Gotha, Flugsport, Vol. 35, No. 16, 15/12/43, p. 80.)
299	18826	G.B.	...	*Some Notes on Pneumatic Tyres.* (R. Hadekel, Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 11-13, 17.)
300	19901	Germany	...	*Preliminary Rotation of Landing Wheels* (735,458). (Elektron, Flugsport, Vol. 35, No. 15, 17/11/43, p. 65.)
301	19902	Germany	...	*Undercarriage Dampers* (735,460, 736,718). (Elektron, Flugsport, Vol. 35, No. 15, 17/11/43, pp. 65-66.)
302	19903	Germany	...	*Ring Springs for Undercarriage Struts* (737,615). (Focke-Wulf, Flugsport, Vol. 35, No. 15, 17/11/43, p. 66.)
303	19905	Germany	...	*Retractable Undercarriages* (735,188, 735,942, 736,110, 736,720). (Various, Flugsport, Vol. 35, No. 15, 17/11/43, pp. 67-69.)
304	19906	Germany	...	*Landing Gear for Either Skid or Wheel Operation at Will* (736,719). (Arado, Flugsport, Vol. 35, No. 15, 17/11/43, p. 68.)
				De-icing.
305	18922	U.S.A.	...	*De-Icer System with Electronic Control.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 324.)
306	19031	Canada	...	*Lumarith Plastic Sheets for Windshields* (*Solves Icing Problem on Seaplanes*). (Canadian Aviation, Vol. 16, No. 7, July, 1943, p. 116.)
307	19910	Germany	...	*Wing De-Icing by Exhaust Assisted by a Combustible Charge* (736,113). (D.F.S., Flugsport, Vol. 35, No. 15, 17/11/43, p. 71.)
				Airport Operation.
308	18553	G.B.	...	*Experimental Soil Mechanics—Part VI.* (R. Allin, Civil Engineering, Vol. 38, No. 449, November, 1943, pp. 238-239.)
309	18961	G.B.	...	*Airfield Saturation* (*Growing Difficulty of Finding Suitable Sites*). (Flight, Vol. 45, No. 1,830, 20/1/43, p. 73.)
310	19113	G.B.	...	*Proposed Air Base at Southampton.* (Engineering, Vol. 157, No. 4,071, 21/1/44, p. 53.)
311	19167	G.B.	...	*Portable Heatable Oil Tank for Airport.* (National Petroleum News, Vol. 35, No. 47, 24/11/43, p. 34.)
312	19198	G.B.	...	*World Air Junction* (*Gatwick Airport Development Plan Advocated in Norman and Dawbarn's Report*). (Aeronautics, Vol. 9, No. 5, Dec., 1943, pp. 40-44.)

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313	19254	G.B.	...	*Runway Materials.* (Aeronautics, Vol. 9, No. 4, Nov., 1943.)
314	19387	G.B.	...	*Three Proposed Airports—Southampton, Portsmouth and Morecambe as Sites for Transatlantic Terminals.* (Flight, Vol. 45, No. 1,831, 27/1/44, pp. 103-104.)
315	19397	G.B.	...	*Vancouver Builds an Airport.* (A. F. Roberts, Commercial Aviation, Vol. 5, No. 10, October, 1943, pp. 80-84.)
316	19637	U.S.A.	...	*Maintaining the Nation's Model Airport (Washington National Airport).* (J. E. Steinhauer, Aviation Maintenance, Vol. 1, No. 1, December, 1943, pp. 79-82.)
317	19765	G.B.	...	*Use of Cold and Wet Aggregate in Bituminous Construction for Roads and Aerodromes.* (A. R. Lee and R. E. Carter, Chemistry and Industry, No. 7, 12/2/44, p. 64.)
318	19771	G.B.	...	*Technical Characteristics of Aerodromes. Part I—Siting and Layout of Land Aerodromes (Issued by the Dept. of Civil Aviation).* (Aeroplane, Vol. 66, No. 1,707, 11/2/44, pp. 150-151.)
319	19874	Germany	...	*Aerodrome Ground Lights* (733,733). (Siemens, Flugsport, Vol. 36, No. 1, 19/1/44, p. 86.)
320	19878	Germany	...	*Inlet Valve for Compressed Air Catapults* (739,293). (Heinkel, Flugsport, Vol. 36, No. 1, 19/1/44, p. 88.)
321	19926	G.B.	...	*American Airport Research.* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, p. 182.)
322	19956	G.B.	...	*Technical Characteristics of Aerodromes. Part I—Siting and Layout of Land Aerodromes (Pamphlet).* (Department of Civil Aviation, Air Ministry, Feb., 1944, pp. 1-41.)
323	19998	U.S.A.	...	*Alaska Seen as Centre of World Air Transport (Abstract of Report).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 32.)
324	19999	U.S.A.	...	*Wooden Cargo Slide Devised by American Airlines to Simplify Unloading Problems (Photo).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 45.)

ENGINES AND ACCESSORIES.

Named Engine Types.

325	18545	G.B.	...	2,200 *h.p. Napier Sabre.* (F. C. Sheffield, Flight, Vol. 45, No. 1,829, 13/1/44, pp. 34-36.)
326	18562	G.B.	...	*A New Aspin Engine (a Four-Cylinder Water-Cooled Unit for Commercial Vehicles).* (L. Mantell, Automobile Engineer, Vol. 34, No. 445, January, 1944, pp. 25-32.)
327	18667	G.B.	...	*A Swedish Aero Engine of 2,500 h.p. (Digest) (The Mannerstedt Engine).* (From Flyg, Vol. 21, No. 18, 9-22/9/43, pp. 21-24.) (Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 333-334.)
328	18728	Germany	...	*B.MW. 802 2,000 h.p. Radial.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, p. 329.)
329	18738	Germany	...	*Juno 211 Petrol Injection Engine.* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 300.)

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330	18959	G.B.	...	*The 2,200 h.p. Cyclone (New Wright Engine Passes Ground and Flight Tests).* (Flight, Vol. 45, No. 1,830, 20/1/43, p. 69.)
331	18960	G.B.	...	*A Third of a Century (Review of Bristol Engine Developments, including the Sleeve Valve Engine).* (Flight, Vol. 45, No. 1,830, 20/1/43, pp. 70-71.)
332	19008	G.B.	...	*Sabre-Typhoon.* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 76.)
333	19024	Canada	...	*Packard Powered Mosquito.* (Canadian Aviation, Vol. 16, No. 7, July, 1943, pp. 45, 56.)
334	19365	G.B.	...	*French Engine Developments (Gnome and Rhone and Hispano Designs).* (Flight, Vol. 45, No. 1,832, 3/2/44, p. 121.)
				Design and Installation.
335	18541	U.S.A.	...	*Diesel Engine Design Trends from War Experience of the U.S. Navy.* (E. C. Magdeburger, S.A.E. Preprints, 10-14/1/44, pp. 1-6.)
336	18684	Germany	...	*The K-Profile Shaft Seat in Aero Engine and Vehicle Construction (Digest).* (From Fertigungstechnik, No. 4, July, 1943, pp. 82-83.) (C. Wolf, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 361-362.)
337	18904	U.S.A.	...	*Aircraft Power Plant Control Systems (Overcoming Backlash).* (N. N. Rubin, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 198-204, 451.)
338	18923	U.S.A.	...	*Combination Air Scoop and Filter to Improve Aeroplane Engine Carburation.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 338.)
339	18932	U.S.A.	...	*Synthetic Rubber Applications on Aircraft Engines.* (G. H. Spremulli, S.A.E. Preprints, 10-14/1/44, pp. 1-24.)
340	19151	G.B.	...	*A Discussion of Selected German Aero Engine Features (Supercharger and Supercharger Drive, Hydraulic Coupling, etc.).* (Aeronautics, Vol. 9, No. 4, Nov., 1943, pp. 39-42.)
341	19205	G.B.	...	*New Barrel Type Engine (24 Cylinders) (Patent).* (Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 62.)
342	19307	G.B.	...	*Steam-Driven Aircraft (Report of New American Design).* (Aeronautics, Vol. 9, No. 6, Jan., 1944, p. 66.)
343	19610	U.S.A.	...	*Development of Piston Type Steam Engine for Aeroplane.* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 87.)
344	19890	Germany	...	*Elastic Suspension for Wing Engine* (738,554). (Julian, Flugsport, Vol. 36, No. 1, 19/1/44, p. 83.)
345	19892	Germany	...	*Tunnel Installation for Wing Radiators* (738,758). (Heinkel, Flugsport, Vol. 36, No. 1, 19/1/44, pp. 83-84.)
				Jet Propulsion.
346	18637	G.B.	...	*Jet Propelled Aircraft (Official Statement).* (Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 32, 34.)

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347	18834	G.B. ...	... *Jet Propulsion—Its Advantages and Limitations.* (Aircraft Engineering, Vol. 16, No. 179, January, 1944, p. 1.)
348	19101	G.B. ...	... *The History of Jet Propulsion—No. II.* (Engineer, Vol. 157, No. 4,594, 28/1/44, pp. 64-66.)
349	19177	G.B. ...	... *American Plan for Jet Propelled Aircraft (Air Streams Forced by Engine-Driven Blowers from Inside the Wings).* (Aeronautics, Vol. 9, No. 3, October, 1943, p. 59.)
350	19461	G.B. ...	... *The History of Jet Propulsion—No. III.* (Engineer, Vol. 177, No. 4,595, 4/2/44, pp. 84-86.)
351	19840	U.S.A.	... *New Method of Jet Propulsion ("Direpeller" System: Jet Projected at Right Angles to an Air Stream).* (E. Lagelbauer, Mechanical Engineering, Vol. 66, No. 1, Jan., 1944, pp. 66-67.)
352	19915	G.B. ...	... *Jet versus Airscrew—Consideration of Turbine-Driven Airscrews.* (G. G. Smith, Flight, Vol. 45, No. 1,834, 17/2/44, pp. 171-172.)
			Accessories (Pistons, Bearings, etc.).
353	18542	U.S.A.	... *Some Physical and Wear Characteristics of Porous Chromium Plated Rings.* (T. C. Jarratt, S.A.E. Preprints, 10-14/1/44, pp. 1-5.)
354	18559	G.B. ...	... *Piston Acceleration (a Graphic Representation of the Error Involved in the Usual Formula).* (A. W. Newman, Automobile Engineer, Vol. 34, No. 445, January, 1944, pp. 15-19.)
355	18577	G.B. ...	... *Cam Design and Application.* (Mechanical World, Vol. 114, No. 2,969, 26/11/43, p. 637.)
356	18869	U.S.A.	... *Engine Safety Shields (Plastacele).* (Modern Plastics, Vol. 20, No. 12, August, 1943, p. 62.)
357	18927	U.S.A.	... *Rational Design of Fastenings.* (E. S. Jenkins, S.A.E. Preprints, 10-14/1/44, pp. 1-14.)
358	18930	U.S.A.	... *Reclamation of Automotive Valves.* (N. Hoertz, S.A.E. Preprints, 10-14/1/44, pp. 1-7.)
359	18934	U.S.A.	... *Summary of Technique of Chrome Plating of Cylinder Barrels.* (B. A. Yates, S.A.E. Preprints, 10-14/1/44, pp. 1-3.)
360	18976	G.B. ...	... *Exhaust Valves for High Duty Internal Combustion Engines.* (C. A. Wilkins and W. J. Currie, Metal Treatment, Vol. 10, No. 35, Autumn, 1943, pp. 147-152, 201.)
361	19004	G.B. ...	... *The Hercules Crankshaft—Design Features.* (J. A. Oates, Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 59-66.)
362	19011	G.B. ...	... *Pressed Aircraft Pistons—Part I (Adoption of Press Forging in the Place of the Drop Hammer Process).* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 85-92.)
363	19193	G.B. ...	... *Improvement in Shaft Bearing Design (Philip and Powis Patent).* (Aeronautics, Vol. 9, No. 1, August, 1943, p. 61.)
364	19342	G.B. ...	... *Hydraulic Cylinder Design.* (Machinery, Vol. 64, No. 1,631, 13/1/44, pp. 44-45.)

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365	19472	U.S.A. ...	*Wartime Maintenance of Rings, Pistons and Cylinders.* (L. Doty, S.A.E. Journal, Vol. 51, No. 12, December, 1943, pp. 439-445.)
366	19733	G.B.	*Flexible Bearings and Bushings.* (The Engineer, Vol. 177, No. 4,596, 11/2/44, pp. 119-120.)
367	19753	G.B.	*Light Alloy Pistons (Review of Fabrication Methods and Materials).* (C. Wilson, Automobile Engineer, Feb., 1944, pp. 53-55.)
368	19820	G.B.	*Static and Clinging Friction of Pivot Bearings.* (M. C. Hunter, Engineering, Vol. 157, No. 4,074, 11/2/44, pp. 117-120.)
			Testing.
369	18928	U.S.A. ...	*Experimental Flight Testing from the Engine Manufacturers' Viewpoint.* (L. C. Miller, S.A.E. Preprints, 10-14/1/44, pp. 1-15.)
370	19473	U.S.A. ...	*Comparison of Laboratory Diesel Engine Tests with Service Performance (500 hr. Laboratory Tests and 60,000-Mile Service Tests Compared on the Basis of Bearing Corrosion, Ring Sticking, Filter Clogging, Engine Deposits, Wear, Used Oil Contamination, etc., Evaluation of the Performance of Lubricating Oils).* (R. S. Westmiller and B. Hegeman, S.A.E. Journal, Vol. 51, No. 12, December, 1943, p. 446.)
371	19576	U.S.A. ...	*Oscillations in Closed Surge Tanks.* (A. M. Binnie, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, p. A183-A186.)
			Thermodynamics.
372	18564	G.B.	*Water Cooling—the Effects of Film in Radiators and Cylinder Blocks.* (Automobile Engineer, Vol. 34, No. 445, January, 1944, p. 36.)
373	19125	G.B.	*The Thermal Rating of Worm Gearboxes—Part I.* (H. Walker, Engineering, Vol. 157, No. 4,072, 28/1/44, pp. 78-80.)
374	19516	G.B.	*The Thermal Rating of Worm Gearboxes.* (H. Walker, Engineering, Vol. 157, No. 4,073, 4/2/44, pp. 97-100.)
375	19752	G.B.	*Air Cooling — Improved Methods of Utilising Aluminium Fins.* (Automobile Engineer, Feb., 1944, p. 52.)
			Performance, Efficiency.
376	18536	U.S.A. ...	*Some of the Problems Presented in L-Head Engines Due to Continued Increases in Compression Ratio.* (E. J. Willis, S.A.E. Preprints, 10-14/1/44, pp. 1-3.)
377	18538	U.S.A. ...	*Altitude Vapour Formation in Aircraft Fuel Systems (a Method of Stimulating Vapour Formations in Fuel Systems).* (W. H. Curtiss and R. R. Curtins, S.A.E. Preprints, 10-14/1/44, pp. 1-11.)
378	18933	U.S.A. ...	*Cooling System Performance of Liquid-Cooled Engines.* (C. A. Stamm and W. E. McCravey, S.A.E. Preprints, 10-14/1/44, pp. 1-13.)

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379	19044	Canada ...	*Safeguards Against Corrosion of Aeroplane Engines.* (Canadian Aviation, Vol. 16, No. 8, Aug., 1943, pp. 83-84.)
380	19277	G.B. ...	*Poisonous Gases in the Exhaust of Diesel Engines.* (Nature, Vol. 153, No. 3,873, 22/1/44, p. 105.)
381	19817	G.B. ...	*Hydraulic Phenomena in Engine Fuel Injection Systems.* (N. Kendall, Engineering, Vol. 157, No. 4,074, 11/2/44, pp. 101-103.)
			De-icing.
382	19401	G.B. ...	*New Engine Warmer for Winter Flying (New Patent).* (Commercial Aviation, Vol. 5, No. 10, October, 1943, pp. 144-146, 152.)
383	19891	Germany ...	*Combined Intercooler and Wing De-Icer for Supercharged Engine* (738,611). (Junkers, Flugsport, Vol. 36, No. 1, 19/1/44, p. 83.)
			Turbines, Pumps, Superchargers.
384	18674	Germany ...	*Hot Air and Combustion Turbines in the Steam Power Plant (Digest).* (From Feuerungstechnik, Vol. 30, No. 9, 15/9/42, pp. 207-211.) (F. Nistler, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 347-348.)
385	18678	Germany ...	*Gas Turbine with Waste Heat Utilisation by Air Pre-Heating (Digest).* (From Die Wärme, Vol. 66, No. 17, Aug., 1943, pp. 200-201.) (H. Pfenninger, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 352-353.)
386	18815	G.B. ...	*Efficiencies of Combustion Turbines.* (W. J. Goudia, Engineering, Vol. 157, No. 4,070, 14/1/44, p. 34.)
387	18931	U.S.A. ...	*Development of a Single Plunger Injection Pump for Four-Cylinder Diesel Engines.* (R. Bowers and R. E. Peterson, S.A.E. Preprints, 10-14/1/44, pp. 1-8.)
388	19041	Canada ...	*Turbine Type Pumps for Aviation Fueling.* (Canadian Aviation, Vol. 16, No. 5, May, 1943, pp. 112-114.)
389	19118	G.B. ...	*Turbo-Supercharger Installation (Bristol Patent).* (Engineering, Vol. 157, No. 4,071, 21/1/44, p. 60.)
390	19175	G.B. ...	*Turbo-Supercharger Installation System Intended for Incorporation in Bristol Radial Engines (Bristol Patent).* (Aeronautics, Vol. 9, No. 3, October, 1943, p. 58.)
391	19190	G.B. ...	*Hobson Double Supercharger Unit (Patent).* (Aeronautics, Vol. 9, No. 1, August, 1943, p. 60.)
392	19207	G.B. ...	*Synchronous Turbine Governing.* (J. C. Prescott, Electrical Review, Vol. 133, No. 3,445, 3/12/43, pp. 735-738.)
393	19234	G.B. ...	*Wind Power Generators.* (W. S. Scholl, The Electrician, Vol. 131, No. 3,420, 17/12/43, pp. 602-603.)
394	19262	G.B. ...	*Erosion of Induced Draught Fans.* (V. Walker, Electrical Times, Vol. 104, No. 2,715, 4/11/43, pp. 542-544.)

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395	19270	G.B. ...	... *Boiler Design—Factors that Influence Availability.* (V. Smith, Electrical Review, Vol. 133, No. 3,442, 12/11/43, pp. 647-649.)
396	19665	Germany	... *Centrifugal Pump for Corrosive Liquids with Porcelain Rotir and Pressure Balanced Glands.* (W. Klein, Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, pp. 84-85.)
397	19692	U.S.A.	... *On a Generalisation of Kirchhoff's Theory of Transversal Plate Vibrations in the Vibration Problem of Steam Turbine Disks.* (I. Malkin, Journal of the Franklin Institute, Vol. 234, No. 4, October, 1942, pp. 369-385.)
398	19735	Germany	... *The Energy Transformation in the Gas and Oil Turbine.* (Die Wärme, Vol. 66, No. 15, June, 1943.) (W. Nusselt, Miscellaneous.)
399	19904	Germany	... *Emerged Pump Installation for Hydraulic Systems* (734,940). (Morane-Saulnier, Flugsport, Vol. 35, No. 15, 17/11/43, pp. 66-67.)

FUELS AND LUBRICANTS.

General.

400	18534	U.S.A.	... *Vapour Lock,* (R. J. S. Pigott, S.A.E. Preprints, 10-14/1/44, pp. 1-11.)
401	18929	U.S.A.	... *Mobilised Research (Work of the Co-ordinating Research Council in the Solution of Problems of Fuels, Lubricants, etc.).* (C. B. Veal, S.A.E. Preprints, 10-14/1/44, pp. 1-17.)
402	18943	G.B. ...	... *Wartime Shipment of Packed Petroleum (Documentary Film) (Handling and Stowage Fire Precautions and Fire Fighting).* (Petroleum Times, Vol. 47, No. 1,208, 13/11/43, pp. 618-619.)
403	18947	G.B. ...	... *"Front Line" U.S. Pipe Lines in N. Africa and Sicily.* (Petroleum Times, Vol. 47, No. 1,203, 4/9/43, pp. 466-467.)
404	18948	G.B. ...	... *Standard Temperature for Specific Gravity Determination and Volume Correction for Petroleum Products* (60°F.). (Petroleum Times, Vol. 47, No. 1,203, 4/9/43, p. 470.)
405	18950	G.B. ...	... *League of Nations "World Economic Survey,* 1941-1942" *(Some Extracts Pertaining to Fuel and Transport).* (The Petroleum Times, Vol. 47, No. 1,203, 4/9/43, pp. 462, 468.)
406	19760	G.B. ...	... *Post-War Fuels.* (Automobile Engineer, Feb., 1944, p. 72.)
407	19767	G.B. ...	... *Correlation of I.P. Loribond and Saybolt Chromometer Colour Measurements on Motor Fuels and Refined Petroleum.* (Journal of the Institute of Petroleum, Vol. 29, No. 240, Dec., 1943, pp. 357-360.)
408	19769	G.B. ...	... *Abstracts (Including Abstracts Author Index and Abstracts Subject Index).* (Journal of the Institute of Petroleum, Vol. 29, No. 240, Dec., 1943, pp. 423A-485A.)

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409	19988	Germany ...	*Apparatus for Investigating the Kinetics of Very Rapid Homogeneous Gas Reactions—Part I.* (G. Damkohler and A. Sander, Z. fur Elektrochemie, Vol. 48, No. 10, Oct., 1942, pp. 523-542.)
410	19989	Germany ...	*Apparatus for Investigating the Kinetics of Very Rapid Homogeneous Gas Reactions. Part II—Mixing Zones of Two Concentric Gas Streams Travelling at Different Velocities.* (G. Damkohler and A. Sander, Z. fur Elektrochemie, Vol. 48, No. 10, Oct., 1942, pp. 544-550.)
			Liquid Fuels.
411	19480	U.S.A. ...	*The Military Application of Fuels and Lubricants (Army Standardising on Two Types of Gasoline) (Summary).* (R. E. Jeffrey, S.A.E. Journal, Vol. 51, No. 12, December, 1943, pp. 33-34.)
413	19756	G.B.	*Temporary Fuels—a Consideration of the Prospects of Their Permanency.* (C. Ridley, Automobile Engineer, Feb., 1944, pp. 63-67.)
414	19779	U.S.A. ...	*New Army All-Purpose Fuel (New Specifications).* (National Petroleum News, Vol. 35, No. 49, 8/12/43, pp. 28-30.)
			High Octane Fuels.
415	18819	U.S.A. ...	*Viscosity of n-Pentane.* (R. M. Hubbard and G. G. Brown, Industrial and Engineering Chemistry, Vol. 35, No. 12, December, 1943, pp. 1276-1280.)
416	19778	U.S.A. ...	100 *Octane Aviation Gasoline and Post-War Motor Fuels.* (National Petroleum News, Vol. 35, No. 49, 8/12/43, pp. 19-26.)
			Gaseous Fuels.
417	18555	G.B.	*Vehicle Equipment with Compressed Town Gas.* (R. O. Moore, Civil Engineering, Vol. 38, No. 449, November, 1943, pp. 254-256.)
418	18669	Germany ...	*Gas Producers for Buses (Digest).* (From Feuerungstechnik, Vol. 31, No. 1, Jan., 1943, pp. 9-10.) (W. Gumz, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 337-338.)
419	18821	U.S.A. ...	*Heat Capacities of Hydrocarbon Gases.* (D. R. Stull, Industrial and Engineering Chemistry, Vol. 35, No. 12, December, 1943, pp. 1303-1304.)
420	18949	G.B.	*The Producer Gas Plant Industry in France.* (E. A. Bell, The Petroleum Times, Vol. 47, No. 1,203, 4/9/43, p. 472.)
421	19122	G.B.	*Producer Gas.* (Engineering, Vol. 157, No. 4,072, 28/1/44, pp. 71-72.)
			Special or Powdered Fuels and Lubricants.
422	18565	G.B.	*Use of Dry Lubrication for Small Mechanisms (Colloidal Graphite in Acetone).* (Automobile Engineer, Vol. 34, No. 445, Jan., 1944, p. 37.)

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423	18946	G.B.	*Creosote-Pitch Fuel: Its Wartime Development in Britain—I.* (A. J. Gibbs Smith, The Petroleum Times, Vol. 47, No. 1,204, 18/9/43, pp. 456-457.)
424	18979	G.B.	*Pulverised Coal for Metallurgical Furnaces.* (Metal Treatment, Vol. 10, No. 35, Autumn, 1943, p. 104.)
425	19283	G.B.	*Large Scale Use of Solid Fuels by German Motor Vehicles.* (Petroleum Times, Vol. 48, No. 1,213, 22/1/44, p. 30.)
426	19285	G.B.	*Metering of Petroleum and Creosote-Pitch (Some Wartime Applications).* (F. H. Williams, Petroleum Times, Vol. 48, No. 1,213, 22/1/44, pp. 46-51, 56.)
			Oils and Lubricants.
427	18937	G.B.	*Lubricating and Cutting Oils (Technical Bulletin, Dec., 1943).* (T. R. Kidd, Journal of the Institution of Production Engineers, Vol. 22, No. 12, December, 1943, pp. 101-112.)
428	18939	G.B.	*Arctic Oil Wells to Play Vital Rôle.* (The Petroleum Times, Vol. 47, No. 1,210, 11/12/43, pp. 672-675.)
429	18944	G.B.	*British Army Design New Oil Supply Systems (German Containers Adapted for British Requirements).* (The Petroleum Times, Vol. 47, No. 1,204, 18/9/43, pp. 488-489, 504, 512.)
430	18951	G.B.	*Oil Transport and Post-War Reconstruction in Europe.* (P. H. Frankel, Petroleum Times, Vol. 48, No. 1,212, 8/1/44, pp. 10-15.)
431	18952	G.B.	*Reclamation of Lubricating and Other Oils.* (V. L. Farthing, Petroleum Times, Vol. 48, No. 1,212, 8/1/44, pp. 16-22.)
432	18953	G.B.	*New Synthetic Oil Processes in Germany.* (Petroleum Times, Vol. 48, No. 1,212, 8/1/44, p. 28.)
433	19169	G.B.	*Oil's Dramatic Rôle in War (Deliveries to War Fronts).* (National Petroleum News, Vol. 35, No. 47, 24/11/43, pp. 17-18.)
434	19252	G.B.	*Conservation and Reclamation of Lubricating and Other Oils.* (W. L. Farthing, Civil Engineering, Vol. 38, No. 450, Jan., 1944, pp. 282-283.)
435	19282	U.S.A. ...	*Barge Transportation of Petroleum and River Oil Terminals.* (J. M. Gamble, National Petroleum News, Vol. 35, No. 48, 1/12/43, pp. 28-32.)
436	19284	G.B.	*Roumania's Oil Industry.* (E. A. Bell, Petroleum Times, Vol. 48, No. 1,213, 22/1/44, pp. 42-44, 58.)
437	19470	U.S.A. ...	*Current Trends in Lubrication.* (S.A.E. Journal, Vol. 51, No. 12, December, 1943, p. 431.)
438	19474	U.S.A. ...	*Laboratory Testing of Heavy Motor Oils (Excerpts from S.A.E. Paper).* (H. L. Moir and others, S.A.E. Journal, Vol. 51, No. 12, December, 1943, p. 456.)
439	19842	U.S.A. ...	*U.S. Oil Shortage (Figures).* (Mechanical Engineering, Vol. 66, No. 1, Jan., 1944, p. 69.)

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			THEORY OF ELASTICITY
			(STRESSES IN PLATES AND COLUMNS, Etc.).
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441	18571	G.B. ...	*The Strength of Gusset Plates in Compression.* (D. E. W. Aldous, Mechanical World, Vol. 114, No. 2,969, 26/11/43, pp. 618-619.)
442	18802	G.B. ...	*The Simple Trussed Beam (Correspondence).* (Engineering, Vol. 157, No. 4,070, 14/1/44, p. 34.)
443	18888	U.S.A.	*Deformation Under Load of Rigid Plastics.* (R. Burns, Modern Plastics, Vol. 21, No. 1, Sept., 1943, pp. 111-112.)
444	18955	G.B. ...	*Some Boundary Problems of Two-Dimensional Elasticity (Replacement of Airy Stress Function by Complex Potentials).* (A. C. Stevenson, Philosophical Magazine, Vol. 34, No. 238, November, 1943, pp. 760-793.)
445	19552	G.B. ...	*Stresses Due to Combination of Bending and Twisting.* (W. A. Taplin, Mechanical World, Vol. 115, No. 2,978, 28/1/44, pp. 85-87.)
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448	19579	U.S.A.	*Failure from Creep as Influenced by the State of Stress.* (W. Siegfried, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, pp. A202-A212.)
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455	19586	U.S.A. ...	*Harmonic Analysis of a Hooke's Joint Motion (Discussion).* (F. A. Hiersch, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, pp. A234-A235.)
456	19587	U.S.A. ...	*The Centre of Shear (Discussion).* (W. R. Osgood, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, pp. A235-A236.)
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458	19726	Switzerland ...	*Stress Concentration in Old Riveted Joints Under Load.* (R.T.P. Translation.) (M. Koenig, J. Roy. Aeronaut. Soc., Vol. 48, No. 398, Feb., 1944, pp. 31-44.)
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MATERIALS

(PROPERTIES, FABRICATION, INSPECTION).

A. Properties.

Al. and Mg. Alloys.

461	18935	U.S.A. ...	*Considerations Regarding the Post-War Utilisation of Aluminium and Magnesium.* (L. W. Kempf, S.A.E. Preprints, 10-14/1/44, pp. 1-5.)
462	18966	U.S.A. ...	*Aluminium in War.* (F. C. Frary, Industrial Engineering and Chemistry (News Edition), 10/12/43, Vol. 21, No. 23, pp. 2018-2019, 2042.)
463	18967	U.S.A. ...	*A Post-War Contest (Review of the Relative Merits of Steel, Light Alloys and Plastics and the Economic Factors Involved).* (J. M. Weiss, Industrial Engineering and Chemistry (News Edition), Vol. 21, No. 23, 10/12/43, pp. 2020-2021.)
464	19065	G.B.	*Wrought Aluminium Alloys in Post-War Building.* (E. G. West, Light Metals, Vol. 7, No. 72, January, 1944, pp. 11-19.)
465	19228	G.B.	*Making Magnesium—Distillation in Electrically-Heated Retorts.* (Electrical Review, Vol. 134, No. 3,452, 21/1/44, pp. 77-81.)
466	19482	G.B.	*Light Aluminium Alloys—Future Prospects in Post-War Britain.* (E. C. Goldsworthy, Metal Industry, Vol. 64, No. 5, 4/2/44, pp. 66-69.)
467	19485	G.B.	*Magnesium Alloy for Use in Pistons (U.S. Patent).* (Metal Industry, Vol. 64, No. 5, 4/2/44, p. 73.)
468	19558	G.B.	*Aluminium Paint.* (Mechanical World, Vol. 115, No. 2,978, 28/1/44, p. 103.)

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			Iron and Steel.
470	18763	G.B.	*The Spanish Iron and Steel Industry.* (Engineering, Vol. 157, No. 4,069, 7/1/44, pp. 16-17.)
471	18764	G.B.	*The Structure of Ingot Iron Containing Lead.* (L. Northcott and D. McLean, Engineering, Vol. 157, No. 4,069, 7/1/44, pp. 18-20.)
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473	19217	G.B.	*Ferro-Silicon Production (Use of Large Smelting Arc Furnaces).* (Electrical Review, Vol. 133 No. 3,450, 7/1/44, pp. 3-8.)
474	19225	G.B.	*Cast Iron—its Functions in Electrical Engineering* (Electrical Review, Vol. 134, No. 3,451, 14/1/44, pp. 63-64.)
475	19344	U.S.A. ...	*Structure and Creep Characteristics of Cast Carbon-Molybdenum Steel at 950°F.* (H. E. Montgomery and J. Urban, A.S.T.M. Bulletin, No. 125, December, 1943, pp. 13-16.)
476	19525	G.B.	*High Manganese Stainless Steels.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 253-254.)
477	19553	G.B.	*Semi-Steel as an Engineering Material.* (Mechanical World, Vol. 115, No. 2,978, 28/1/44, pp. 87-88.)
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481	19853	G.B.	*Use of Cast Iron Rods to Repair Castings (Substitute for Bronze Welding).* (A. Havens, Machinist, Vol. 87, No. 40, 27/1/44, pp. 108-110.)
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484	18916	U.S.A. ...	*Standard Coppers Chart.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 266.)
485	19513	G.B.	*The Nomenclature of Non-Ferrous Alloys.* (Engineering, Vol. 157, No. 4,073, 4/2/44, p. 93.)
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488	19678	Germany	...	*Wrought Zinc Alloys of High Fatigue Strength*. (Z.V.D.I., Vol. 87, No. 51-52, 25/12/43, p. 87.)
489	19823	G.B. ...	...	*Conservation of Copper in Electrical Equipment*. (O. I. Butler, Electrician, Vol. 132, No. 3,425, 21/1/44, pp. 52-55.)
490	19949	G.B. ...	...	*The Future of Lead*. (Metal Industry, Vol. 64, No. 7, 18/2/44, p. 97.)
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491	18742	U.S.A.	...	*Resin Bonded Marine Bearings* (*Ryertex*). (Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 78-79.)
492	18743	U.S.A.	...	*Industrial Applications of Phenolic Resins*. (Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 84-88, 166.)
493	18748	U.S.A.	...	*Plastic Housings for Tapping Attachments*. (Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 110-112.)
494	18787	G.B. ...	...	*The Plastics Industry in* 1943 (*Review by Some of its Leaders*). (British Plastics, Vol. 16, No. 176, January, 1944, pp. 3-12.)
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497	18792	G.B. ...	...	"*Plasticeramic*"—*A New Insulating Material*. (British Plastics, Vol. 16, No. 176, January, 1944, p. 34.)
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501	19488	G.B. ...	...	*Plating Rack Insulation* (*Use of Synthetic Resin*). (Metal Industry, Vol. 64, No. 5, 4/2/44, p. 76.)
502	19548	U.S.A.	...	*Synthetic Elastomer—Styradoy 22* (*Developed by Dow for Electrical and Mechanical Applications*). (Review of Scientific Instruments, Vol. 14, No. 11, November, 1943, p. 343.)
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505	19711	G.B.	*Expanded Plastics (Thermazote, Plastazote, etc.).* (Plastics, Vol. 8, No. 81, Feb., 1944, pp. 55-56.)
506	19712	G.B.	*The Future Possibilities of Ethyl Cellulose.* (E. E. Halls, Plastics, Vol. 8, No. 81, Feb., 1944, pp. 57-64.)
507	19714	G.B.	*Synthetic Resin Cement of Novel Properties.* (Plastics, Vol. 8, No. 81, Feb., 1944, p. 66.)
508	19715	G.B.	*Translucent Skin of Ethyl Cellulose Plastic (for Protection of Machine Parts in Shipment).* (Plastics, Vol. 8, No. 81, Feb., 1944, p. 66.)
509	19716	G.B.	*Classification of Plastic Materials on the Basis of Engineering Properties.* (Plastics, Vol. 8, No. 81, Feb., 1944, p. 67.)
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511	19734	Germany ...	*The Technique of Lining Tanks Made of Wood Match or Concrete with Vinidue Plastic.* (Kunststoffe, Vol. 32, No. 2, Feb., 1943, pp. 33-39.) (Miscellaneous.)
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513	19934	G.B.	*A German Plastics Lantern.* (British Plastics, Vol. 16, No. 177, Feb., 1944, pp. 61-62.)
514	19936	G.B.	*Nylon as a Thermo-Plastic.* (British Plastics, Vol. 16, No. 177, Feb., 1944, p. 65.)
515	19938	G.B.	*Plastics in Rainwear.* (British Plastics, Vol. 16, No. 177, Feb., 1944, p. 67.)
516	19939	G.B.	*Polyvinyl Alcohol. Part II—Its Chemistry and Applications.* (I. Jones, British Plastics, Vol. 16, No. 177, Feb., 1944, pp. 77-83.)
517	19940	G.B.	*A Survey of Plastics—Part II (from the Viewpoint of the Mechanical Engineer).* (S. L. Smith, British Plastics, Vol. 16, No. 177, Feb., 1944, pp. 84-90.)
518	19957	India ...	*Physical Chemistry of Resin Solutions. Part VII—Viscosity Studies in Mixed Solvents with Some Resins and Cellulose Derivatives (Bulletin No. 53).* (S. R. Palit, India Lac Research Institute, 1943, pp. 1-10.)
519	19958	India ...	*Physical Chemistry of Resin Solutions. Part VI—On the Relationship Between Precipitation and Gelation of Resins (Bulletin No. 52).* (S. R. Palit, Indian Lac Research Institute, 1943, pp. 1-5.)
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520	19532	U.S.A. ...	*The General Purpose Synthetic Rubbers in the Automotive Industry.* (A. H. Somerville and R. T. Vanderbilt, S.A.E. Preprints, 10-14/1/44, pp. 1-13.)

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522	18814	G.B.	*British Rubber Federation Report (Review of Development Work).* (Engineering, Vol. 157, No. 4,070, 14/1/44, p. 33.)
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524	18941	G.B.	*Rubbaglex Sheeting (Suitable for Making Washers, Gaskets, etc.).* (The Petroleum Times, Vol. 47, No. 1,210, 11/12/43, p. 693.)
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526	19530	G.B.	*Chlorinated Rubber for Food Containers.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, p. 270.)
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529	19846	G.B.	*Preventing Rubber Adhesion Under Pressure ("Tyreprim" Coating).* (Machinist, Vol. 87, No. 40, 27/1/44, pp. 251E-252E.)
			Woods, Glues, Paper.
530	18751	U.S.A. ...	*Resin Impregnation of Wood.* (R. Casselman, Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 124-126, 168.)
531	18970	U.S.A. ...	*Weatherproof Paper Board.* (Industrial and Engineering Chemistry (News Edition), 10/12/43, Vol. 21, No. 23, p. 2051.)
532	18971	U.S.A. ...	*Plastic Hard Wood.* (Industrial and Engineering Chemistry (News Edition), 10/12/43, Vol. 21, No. 23, p. 2051.)
533	18997	G.B.	*The Coming of Plywood (a Revolution in the Utilisation of Timber).* (Nature, Vol. 152, No. 3,866, 4/12/43, pp. 651-653.)
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535	19202	G.B.	*New Woods for Old (Review of Improved or Resin Bonded Plywood).* (J. S. Trevor, Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 56.)
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538	19900	Germany ...	*Rapid Identification of Type of Glue Used in Plywood.* (Flugsport, Vol. 35, No. 15, 17/11/43, p. 240.)

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540	18679	U.S.A.	... *Glass Fibres—a New Engineering Material (Digest).* (Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 353-355.)
541	18785	G.B. ...	... *Diamond (Study of its Properties, Industrial Applications, etc.).* (Sir Robert Robertson, Chemistry and Industry, Vol. 63, No.. 3, 15/1/44, pp. 18-24.)
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546	18752	G.B. ...	... *Asbestos Cement.* (Science Library Bibliographical Series No. 599, 1943.)
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548	19487	G.B. ...	... *Temperature—Indicating Crayons.* (Metal Industry, Vol. 64, No. 5, 4/2/44, p. 76.)
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550	19755	G.B. ...	... *Cemented Carbides—Recent German Practice in the Design of Hard Metal Tools.* (M. Littman, Automobile Engineer, Feb., 1944, pp. 59-62.)
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551	19235	G.B. ...	... *Ceramics.* (A. G. Arend, Electrician, Vol. 131, No. 3,422, 31/12/43, p. 650.)
552	19246	G.B. ...	... *Silver for Electrical Purposes.* (R. A. Collacott, Electrical Times, Vol. 105, No. 2,725, 13/1/44, pp. 42-44.)
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554	19742	G.B. ...	... *Ceramics for High-Frequency Insulation.* (Nature, Vol. 152, No. 3,859, 16/10/43, pp. 453-454.)
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			Welding and Riveting.
555	18631	G.B. ...	... *Gas Welding of Aluminium (B.S. 1,126).* (Metal Industry, Vol. 64, No. 2, 14/1/44, p. 24.)
556	18808	G.B. ...	... *Electric Welding in Shipbuilding (H.M.S.O. Publication).* (Engineering, Vol. 157, No. 4,070, 14/1/44, p. 24.)

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557	19252	G.B.	...	*New Light Alloy Spot Welders.* (Electrical Times, Vol. 105, No. 2,726, 20/1/44, pp. 76-77.)
558	19291	G.B.	...	*The Application of Scientific Welding.* (C. W. Brett, Civil Engineering, Vol. 38, No. 450, Jan., 1944, pp. 279-280.)
559	19407	G.B.	...	*Difference Between Ordinary and Atomic Hydrogen Arc Welding.* (Machinery, Vol. 64, No. 1,632, 20/1/44, p. 74.)
560	19483	G.B.	...	*Welding of Copper and its Alloys (Recommended Technique for Low Copper-Zinc Alloys and Bronzes).* (J. J. Vreeland, Metal Industry, Vol. 64, No. 5, 4/2/44, p. 70.)
561	19501	G.B.	...	*Light Alloy Welder.* (Electrical Review, Vol. 134, No. 3,453, 28/1/44, pp. 119-130.)
562	19655	G.B.	...	*Diamond Lock Riveting.* (Production and Engineering Bulletin, Vol. 2, No. 12, November, 1943, pp. 567-569.)
563	19676	Germany	...	*Weld Current Resistance Control when Operating Several Arcs in Parallel.* (Z.V.D.I., Vol. 87, No. 51-52, 25/12/43, pp. 815-816.)
564	19682	Germany	...	*Low Temperature Cooling of Spot Welding Electrodes (−18°C.).* (Z.V.D.I., Vol. 87, No. 51-52, 25/12/43, p. 819.)
565	19808	U.S.A.	...	*Transition from Riveted to Welded Tank Construction.* (W. Osha, Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, pp. 120-122.)
566	19822	G.B.	...	*Light Alloy Spot Welder (Philips).* (Electrician, Vol. 132, No. 3,425, 21/1/44, pp. 51-52.)
567	19847	G.B.	...	*How to Use Resistance Welding.* (R. T. Gillett and J. F. Young, Machinist, Vol. 87, No. 40, 27/1/44, pp. 91-93.)
568	19848	G.B.	...	*Tools and Methods Used in Aluminium Riveting (Photos).* (Machinist, Vol. 87, No. 40, 27/1/44, pp. 94-97.)
569	19857	U.S.A.	...	*Pipe Bevels Flame-Cut Automatically (Preparatory to Butt Welding).* (Machinist, Vol. 87, No. 40, 27/1/44, pp. 114-115.)
570	19898	Germany	...	*Butt Welding Plexiglass.* (Flugsport, Vol. 35, No. 15, 17/11/43, pp. 226-227.)
571	19959	G.B.	...	*Bibliography on Resistance Welding Electrodes (March, 1943).* (The Institute of Welding, pp. 1-2.)
572	19964	G.B.	...	*Bibliography on Welded Ships (Sept., 1943).* (The Institute of Welding, pp. 1-31.)
573	19965	G.B.	...	*Bibliography on Butt and Flash Butt Resistance Welding (June, 1942).* (The Institute of Welding, pp. 1-4.)
574	19966	G.B.	...	*Bibliography on Unionmelt: An Automatic Arc Welding Process (Aug., 1942).* (The Institute of Welding, pp. 1-2.)
575	19968	G.B.	...	*Bibliography on Under Water Welding and Under Water Cutting (Feb., 1943).* (The Institute of Welding, pp. 1-3.)

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577	19971	G.B.	*Bibliography on Carbon Arc Welding* (*Nov.*, 1942). (The Institute of Welding, pp. 1-2.)
578	19972	G.B.	*Bibliography on Welding Construction versus Castings* (*Feb.*, 1943). (The Institute of Welding, pp. 1-2.)
579	19976	G.B.	*Bibliography on Bronze Welding* (*Dec.*, 1942). (The Institute of Welding, pp. 1-4.)
580	19977	G.B.	*Bibliography on Surfacing (by Welding).* (The Institute of Welding, pp. 1-4.)
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582	19979	G.B.	*Bibliography on Automatic Arc Welding* (*Nov.*, 1941). (The Institute of Welding, pp. 1-3.)
583	19980	G.B.	*Bibliography on Atomic Hydrogen Welding* (*July*, 1942). (The Institute of Welding, pp. 1-2.)
584	19981	G.B.	*Bibliography on Thermit Welding* (*Aug.*, 1942). (The Institute of Welding, pp. 1-2.)
585	19984	G.B.	*Publications of the Institute of Welding.* (The Institute of Welding, pp. 1-6.)
586	19985	G.B.	*Recrystallisation Welding of Aluminium and its Alloys: A Review of Literature to June*, 1941. (J. B. Wilson, The Institute of Welding, pp. 1-7.)
			Soldering and Brazing.
587	19357	G.B.	*Electronic Device for Soldering.* (Mechanical World, Vol. 115, No. 2,976, 14/1/44.)
588	19541	G.B.	*Low Temperature Brazing.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, p. 330.)
589	19852	G.B.	*Carbide Tools Tipped by Induction Brazing,* (P. Miller, Machinist, Vol. 87, No. 40, 27/1/44, p. 106.)
590	19960	G.B.	*Bibliography on Brazing* (*Aug.*, 1942). (The Institute of Welding, pp. 1-3.)
			Plating and Spraying.
591	18799	G.B.	*Plating Fine Wire with Nickel.* (J. H. Conolly and R. Rimbach, Metal Industry, Vol. 64, No. 3, 21/1/44, pp. 43-44.)
592	18800	G.B.	*Porous Chromium Plating.* (Metal Industry, Vol. 64, No. 3, 21/1/44, p. 44.)
593	18801	Germany ...	*Improving Metallic Surfaces Through Diffusion (Hard Layers on Light Alloy Materials). (Abstract of Paper in Zeitschrift für Elektrochemie.)* (H. Vossküeler, Metal Industry, Vol. 64, No. 3, 21/1/44, p. 44.)
594	18917	U.S.A. ..	*Recovery of Paint Overspray.* (S. D. Perlman, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 269, 280.)
595	19212	G.B.	*Electrolytic Tinplate.* (Electrical Review, Vol. 133, No. 3,448, 24/12/43, pp. 835-837.)

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596	19529	G.B.	*Canning Practice and Experiences with Electrolytic Tinplate.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 267-269.)
597	19486	G.B.	*Hard Chromium Plating (Discussion).* (Metal Industry, Vol. 64, No. 5, 4/2/44, pp. 74-76.)
598	19524	G.B.	*Electrotinning of Steel Strip.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, p. 252.)
599	19681	Germany ...	*Insulation of Soft Iron Transformer Strips by Phosphatising.* (Z.V.D.I., Vol. 87, Nos. 51-52, 25/12/43, p. 819.)
600	19863	Canada ...	*Galvanizing Spray (Coating of "Galvweld" Metal).* (Canadian Aviation, Vol. 16, No. 12, Dec., 1943, pp. 144-146.)
			Moulding and Casting.
601	18628	G.B.	*Gravity Die-Casting.* (E. H. A. Carlton, Metal Industry, Vol. 64, No. 2, 14/1/44, pp. 18-21.)
602	18747	U.S.A. ...	*New Application of Heatronic Moulding (Application to Phenolic Materials).* (Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 106-107.)
603	18749	U.S.A. ...	*Injection Moulding of Nylon.* (R. B. Akin and J. E. Teagarden, Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 115-120, 166.)
604	18762	G.B.	*The Use of Wood Dust in Moulding Sand.* (Engineering, Vol. 157, No. 4,069, 7/1/44, p. 16.)
605	19242	G.B.	*High Frequency Preheating in Moulding Plastics.* (Electrical Times, Vol. 104, No. 2,722, 23/12/43, pp. 743-744.)
606	19274	G.B.	*Electrical Mouldings—Possibilities and Limitations of Plastics as Applied to the Electrical Industry.* (Electrical Review, Vol. 133, No. 3,444, 26/11/43, pp. 699-703.)
607	19311	G.B.	*Developments in Hard Metal Dies and Bushes.* (E. J. Swinn, Machinery, Vol. 63, No. 1,611, 26/8/43, pp. 229-230.)
608	19315	G.B.	*Die Casting (Sprues, Runners and Gates of Die Casting Dies).* (H. K. Barton, Machinery, Vol. 63, No. 1,611, 26/8/43, pp. 246-248.)
609	19414	G.B.	*Preheating for Plastic Moulding (Use of Electronic Equipment).* (Mechanical World, Vol. 116, No. 2,977, 21/1/44, p. 63.)
610	19556	Germany ...	*A New Method of Casting Steel Ingots or Blocks (Results of Some German Research).* (Z.V.D.I., Vol. 86, 1942, p. 414.) (P. F. Erichsen, Mechanical World, Vol. 115, No. 2,978, 28/1/44, p. 95.)
611	19573	G.B.	*Clipping and Broaching Operations on Die Castings.* (Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 106-108.)
612	19574	G.B.	*Zinc Alloy Pressure Die Castings for Service Application.* (Machinery, Vol. 64, No. 1,633, 27/1/44, p. 106.)
613	19670	Germany ...	*The Design of Plastic Press Mouldings.* (H. Gerol, Z.V.D.I., Vol. 87, No. 51-52, 25/12/43, pp. 797-802.)

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614	19937	G.B.	*Jet Moulding* (*Substituting a Jet Nozzle for an Injection Moulding Nozzle*). (D. M. Buchanan, British Plastics, Vol. 16, No. 177, Feb., 1944, pp. 66-67.)
			Heat Treatment.
615	18788	G.B.	*High Frequency Preheating—A New Process of Moulding Plastics.* (G. Dring, British Plastics, Vol. 16, No. 176, January, 1944, pp. 13-26.)
616	18796	G.B.	*Melting Non-Ferrous Metals* (*Practical Hints on Furnaces, Deoxidisers and Fluxes, Melting Copper and Bronzes*). (J. J. Hall, Metal Industry, Vol. 64, No. 3, 21/1/44, pp. 38-40.)
617	19003	G.B.	*Light Alloy Foundry Technique* (*Manufacture and Use of Metals, Patterns, Cores and Moulds*). (Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 55-58.)
618	19244	G.B.	*High Frequency Heating of Laminated Materials.* (A. E. L. Jervis, Electrical Times, Vol. 105, No. 2,725, 13/1/44, pp. 36-38.)
619	19416	G.B.	*Selecting the Heat Treatment for Gears.* (Mechanical World, Vol. 116, No. 2,977, 21/1/44, pp. 65-67.)
620	19542	G.B.	*Hardening and Tempering Flat Springs.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, p. 318.)
621	19567	G.B.	*Secondary Hardening of High Speed Steel Cutting Tools.* (J. Garland, Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 91-94.)
622	19725	G.B.	*Magnesium Foundry Sand* (*Practice of American Magnesium Corporation*). (M. E. Gautz, Metal Industry, Vol. 64, No. 6, 11/2/44, p. 91.)
623	19850	G.B.	*Selection of Recirculating Furnaces.* (J. Wallerius, Machinist, Vol. 87, No. 40, 27/1/44, pp. 101-104.)
624	19851	G.B.	*Device for Quick Quenching of Aluminium Parts.* (Machinist, Vol. 87, No. 40, 27/1/44, p. 105.)
			Surface Finish.
625	18523	G.B.	*Machining and Finishing of Tenite.* (Plastics, Vol. 8, No. 80, Jan., 1944, p. 39.)
626	18797	G.B.	*Metallographic Polishing Process.* (Metal Industry, Vol. 64, No. 3, 21/1/44, p. 40.)
627	19591	U.S.A. ...	*Surface Finish* (*Report of the Research Department of the Institution of Production Engineers*). (G. Schlesinger, Surface Finish Published by A.S.M.E., January, 1943, pp. 1-231.)
628	19761	G.B.	*Surface Finish—Review of the Various Processes, including Measurement.* (W. E. R. Clay, Automobile Engineer, Feb., 1944, pp. 73-78.)
629	19815	G.B.	*The Production of Surface Finish.* (J. L. Hepworth, J. Inst. Prod. Eng., Vol. 23, No. 1, Jan., 1944, pp. 1-34.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Grinding, Milling, Cutting, etc.
630	18630	G.B. ...	... *The Control of Magnesium Dust—American Practice in Grinding, Polishing, Buffing, Filing and Sawing.* (Metal Industry, Vol. 64, No. 2, 14/1/44, pp. 22-24.)
631	19310	G.B. ...	... *The Machining of Laminated Plastics (Drilling, Turning, Boring, Screw Cutting, etc.).* (Machinery, Vol. 63, No. 1,611, 26/8/43, pp. 225-227.)
632	19327	G.B. ...	... *Securing Fine Surfaces by Grinding.* (H. J. Wills, Machinery, Vol. 63, No. 1,627, 16/12/43, pp. 690-691.)
633	19328	G.B. ...	... *Perforating Fine Bronze Strip.* (Machinery, Vol. 63, No. 1,627, 16/12/43, pp. 688-689.)
634	19409	G.B. ...	... *Bevel Grinding Glass Discs.* (Machinery, Vol. 64, No. 1,632, 20/1/44, pp. 75-76.)
635	19597	U.S.A.	... *Tool-Room Milling—III.* (H. A. Frommett, Machinist, Vol. 87, No. 38, 8/1/44, pp. 84-85.)
636	19754	G.B. ...	... *Friction Cutting.* (Automobile Engineer, Feb., 1944, p. 58.)
637	19762	G.B. ...	... *Thread Milling—Recent Developments in Special Purpose Machines.* (Automobile Engineer, Feb., 1944, pp. 79-80.)
638	19849	G.B. ...	... *Quenching Dies Minimise Gear Grinding.* (F. A. Paquin, Machinist, Vol. 87, No. 40, 27/1/44, pp. 98-100.)
639	19855	G.B. ...	... *Refrigerated Oil Helps Grind Precision Threads.* (Machinist, Vol. 87, No. 40, 27/1/44, pp. 112-113.)
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640	19528	G.B. ...	... *Stress-Strain Measurements in the Drawing of Cylindrical Cups.* (E. L. Bartholomew, Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 265-266, 267.)
641	19588	U.S.A.	... *The Distribution of Strains in the Rolling Process (Discussion).* (C. W. MacGregor and L. F. Coffin, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, pp. A236-A237.)
642	19596	U.S.A.	... *Folds Eliminated when Bending Copper Tubes (Use of Fixtures).* (H. Hodges, Machinist, Vol. 87, No. 38, 8/1/44, pp. 80-82.)
			Machines and Tools.
643	18691	Switzerland ...	*Combined Torsion and Bending Fatigue Testing Machine (N.P.L. Type).* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 78-80.)
644	18700	Switzerland ...	*New Arnsler Fatigue Testing Machine (Combined Bending and Torsion).* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, pp. 78-80.)
645	18760	G.B. ...	... *Centrifugal Quenching Machine.* (Engineering, Vol. 157, No. 4,069, 7/1/44, p. 7.)
646	18809	G.B. ...	... *Hand-Operated Die Casting Machine.* (Engineering, Vol. 157, No. 4,070, 14/1/44, pp. 25-26.)

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647	19313	G.B.	*Increasing the Life of Cutting Tools Used in Machining High Alloy Steels by Chromium Plating.* (Machinery, Vol. 63, No. 1,611, 26/8/43, p. 236.)
648	19325	G.B.	*Tool Holders for Cemented Carbide Bits.* (Machinery, Vol. 63, No. 1,627, 16/12/43, p. 679.)
649	19403	G.B.	*Locating Device for the Machining of Small Thin Parts.* (Machinery, Vol. 64, No. 1,632, 20/1/44, p. 62.)
650	19404	G.B.	*Using Machine Tools to Best Advantage.* (W. K. Bailey, Machinery, Vol. 64, No. 1,632, 20/1/44, pp. 65-68.)
651	19405	G.B.	*Direct Current Adjustable Speed Drives for Machine Tools.* (G. A. Coldwell, Machinery, Vol. 64, No. 1,632, 20/1/44, pp. 69-72.)
652	19406	G.B.	*Zinc Alloy Cast Jaws Facilitate Machining Operations (Kirksite A).* (Machinery, Vol. 64, No. 1,632, 20/1/44, pp. 73-74.)
653	19523	G.B.	*Three-Roll Straightening Machine.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 251-252.)
654	19555	G.B.	*Colour Control for Machine Tools (Murray System).* (A. J. T. Eyles, Mechanical World, Vol. 115, No. 2,978, 28/1/44, pp. 93-94.)
655	19563	Germany ...	*Recent German Grinding Machine Practice.* (Z.V.D.I., Vol. 87, 1943, pp. 365-366.) (I. E. Reinecker, Mechanical World, Vol. 115, No. 2,979, 4/2/44, pp. 120-121.)
656	19570	G.B.	*Simple Drilling Jig for Links.* (Machinery, Vol. 64, No. 1,633, 27/1/44, p. 98.)
657	19571	G.B.	*Tool for Marking Out 60 deg. Segments.* (Machinery, Vol. 64, No. 1,633, 27/1/44, p. 100.)
658	19578	U.S.A. ...	*On Cutting and Hobbing Gears and Worms.* (D. W. Dudley and H. Poritsky, Journal of Applied Mechanics, Vol. 10, No. 4, December, 1943, pp. A197-A201.)
659	19758	G.B.	*Floating Reamers.* (Automobile Engineer, Feb., 1944, pp. 69-70.)

C. Inspection.

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660	18695	Switzerland ...	*Static Load Tests on Thin Metal Sheet (Digest).* (G. Everts, Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 77.)
661	18756	G.B.	*The Determination of Sodium in Aluminium and its Alloys.* (R. Smart, Journal of Society of the Chemical Industry, Vol. 62, No. 12, Dec., 1943, pp. 213-216.)
662	18757	G.B.	*The Determination of Sodium in Aluminium Alloys by a Modified "Scheuer" Method, with Particular Reference to Alloys Containing Magnesium.* (G. H. Osborn, Journal of Society of the Chemical Industry, Vol. 62, No. 12, Dec., 1943, pp. 216-219.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
663	18991	Germany ...	*Rapid Determination of the Magnesium Content of Al./Mg. Alloys.* (Z.V.D.I., Vol. 86, Nos. 35-36, 5/9/42, p. 558.)
664	19345	U.S.A. ...	*Use of Photoelectric Spectrophotometric Techniques in Chemical Analysis.* (J. W. Stillman, A.S.T.M. Bulletin, No. 125, December, 1943, pp. 17-19.)
665	19668	Germany ...	*Rapid Visual Identification of Austerite, Ferrite and Carbides in the Firm Structure of High Chromium Steels. (Etching of Section Followed by Annealing in Air at 500-700°C.)* (Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, p. 87.)
666	19675	Germany ...	*Testing the Weldability of Soft Steel Sheets.* (H. Cornelius, Z.V.D.I., Vol. 87, Nos. 51-52, 25/12/43, p. 815.)
667	19679	Germany ...	*Determination of the Thermal Conductivity of Metals.* (Z.V.D.I., Vol. 87, Nos. 51-52, 25/12/43, pp. 817-818.)

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668	18906	U.S.A. ...	*Scattered Radiation in Relation to X-Ray Inspection.* (R. Taylor, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 218-223, 292.)
669	19515	G.B.	*X-Ray Research in Crystals.* (K. Lonsdale, Engineering, Vol. 157, No. 4,073, 4/2/44, pp. 95-96.)
670	19961	G.B.	*Bibliography on the Testing of Welds by X-Rays.* (The Institute of Welding, April, 1942, pp. 1-5.)

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671	18750	U.S.A. ...	*Photoelastic Detection of Strains in Injection Moulded Transparent Plastics.* (J. Delmonte and W. Dewar, Modern Plastics, Vol. 21, No. 3, November, 1943, pp. 121-123.)
672	18954	G.B.	*Some Spectrophotometric Investigations on Iron Oxide containing Soda, Lime, Silican Glasses. Part I—The Influence of Concentration and Ferric Ferrous Dissociation.* (T. H. Wang and W. E. S. Turner, Philosophical Magazine, Vol. 34, No. 238, November, 1943, pp. 744-766.)
673	19245	G.B.	*The Electron Microscope. Part II—Practical Application.* (E. H. Rayner, Electrical Times, Vol. 105, No. 2,725, 13/1/44, pp. 39-41.)
674	19967	G.B.	*Bibliography on the Testing of Welds by Magnetic Methods.* (The Institute of Welding, Sept., 1942, pp. 1-2.)
675	19975	G.B.	*Bibliography on Welding Inspection.* (The Institute of Welding, Feb., 1943, pp. 1-2.)
676	19987	Germany ...	*The Influence of Supersonics on the Magnetic Behaviour of Nickel. III—Measurement with the Ferrograph Using Ni. Wire.* (G. Schmid and U. Jetter, Z. fur Elektrochemie, Vol. 48, No. 10, Oct., 1942, pp. 513-522.)

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				Quality Control.
677	18563	G.B.	...	*Quality Control—the Application of Statistical Methods to Inspection Systems.* (Automobile Engineer, Vol. 34, No. 445, January, 1944, pp. 33-35.)
678	19227	G.B.	...	*Quality Control—the Human Factor.* (D. Williams, Electrical Review, Vol. 134, No. 3,452, 21/1/44, p. 76.)
679	19341	G.B.	...	*Inspection Efficiency (Extract from I.M.E. Paper).* (J. C. Edwards and W. A. Bennett, Machinery, Vol. 64, No. 1,631, 13/1/44, pp. 42-43.)
680	19408	G.B.	...	*A Quality Control Calculator.* (Machinery, Vol. 64, No. 1,632, 20/1/44, pp. 75-76.)
681	19683	G.B.	...	*Quality Control in Operation (Standard Control Limits).* (Production and Engineering Bulletin, Vol. 2, No. 13, December, 1943, pp. 577-582.)
682	19845	G.B.	...	*Inspection Efficiency—III.* (J. C. Edwards and W. A. Bennett, Machinist, Vol. 87, No. 40, 27/1/44, p. 251E.)
				INSTRUMENTS.
				Physical, Mechanical.
683	18681	U.S.A.	...	*Measuring Mechanical Vibrations (Westinghouse Vibrograph).* (Engineers' Digest, Vol. 4, No. 12, Dec., 1943, p. 356.)
684	18699	Switzerland	...	*Periscope Sextant.* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 83.)
685	18714	U.S.A.	...	*Moisture Indicator for Transport Packages.* (Flugwehr und Technik, Vol. 5, No. 7, July, 1943, p. 194.)
686	18786	G.B.	...	*A Simple Gasometric Apparatus for Estimation of Carbon Dioxide.* (T. A. Oxley, Chemistry and Industry, Vol. 63, No. 3, 15/1/44, pp. 24-25.)
687	18837	G.B.	...	*A Combined Hydrogen and Helium Liquifier (for Low Temperature Research).* (A. Schallamash, Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, pp. 195-196.)
688	18838	G.B.	...	*A Design for a Swinging Plate Anemometer.* (K. R. May, Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, pp. 196-197.)
689	19073	G.B.	...	*Reflecting Microscopes.* (C. R. Burch, Nature, Vol. 152, No. 3,869, 25/12/43, pp. 748-749.)
690	19546	U.S.A.	...	*The Interference Spherometer.* (E. Speyer, Review of Scientific Instruments, Vol. 14, No. 11, November, 1943, pp. 336-338.)
691	19664	Germany	...	*Instruments for Performance of Testing of Ships (Torque, Thrust, r.p.m., Log, Anemometer).* (Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, pp. 83-84.)
692	19770	G.B.	...	*Wartime Specification for I.P. Petroleum Hydrometers.* (Journal of the Institute of Petroleum, Vol. 29, No. 240, Dec., 1943, pp. 1-4.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Photo-Electric, Electric.
693	18740	Switzerland ...	*Oximeter (Photoelectric Device for Determining Oxygen Want of Airscrew).* (Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, p. 302.)
694	18758	G.B.	*The Determination of Phosphorous in Iron and Steel by Means of the Spekkes Photoelectric Absorptiometer. An "Arsenic Free" Method.* (T. S. Harrison and W. Fisher, Journal of Society of the Chemical Industry, Vol. 62, No. 12, Dec., 1943, pp. 221-229.)
695	18835	G.B.	*A High Temperature X-Ray Analysis Camera.* (E. A. Owen, Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, pp. 190-192.)
696	18840	G.B.	*Toroidal Winding Machines (for Applying Wire or Tape, etc., on to Toroidal or Other Types of Cores).* (F. E. Planer, Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, pp. 185-189.)
697	18999	G.B.	*Recording Cathode Ray Oscillograph Traces.* (Nature, Vol. 152, No. 3,866, 4/12/43, pp. 656-657.)
698	19081	G.B.	*A New Type of Microphotometer.* (Nature, Vol. 153, No. 3,872, 15/1/44, pp. 81-82.)
699	19267	G.B.	*Clock for Short Time Intervals.* (Electrical Times, Vol. 104, No. 2,718, 25/11/43, p. 645.)
700	19547	U.S.A. ...	*An X-Ray Tube Using an Electron Gun.* (J. J. G. McCue, Review of Scientific Instruments, Vol. 14, No. 11, November, 1943, p. 339.)
			Electronic, Magnetic.
701	18836	G.B.	*Electronic Unit for Accurate Timing of Switching Operations in Rapid and Adjustable Sequence.* (F. O. Mason and K. Goldschmidt, Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, pp. 192-194.)
702	18896	U.S.A. ...	*The Pioneer Flux Gate Compass.* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 152-157.)
703	19211	G.B.	*The Electron Microscope.* (E. H. Rayner, Electrical Review, Vol. 133, No. 3,447, 17/12/43, p. 832.)
704	19360	G.B.	*Electronic Stabiliser and Co-ordinate Potentiometer (I.E.E. Paper).* (Electrical Times, Vol. 105, No. 2,727, 27/1/44, pp. 106-108.)
705	19519	G.B.	*The Electron Microscope.* (G. Thomson, Endeavour, Vol. 2, No. 8, Oct., 1943, pp. 125-135.)
706	19545	U.S.A. ...	*Reciprocal Lorentz-Polarization Factor Charts for Equi-Inclination Weissenberg Photographs (for Obtaining Visual Intensity Measurements in Crystal Structure Analysis).* (Chia-Si Lu, Review of Scientific Instruments, Vol. 14, No. 11, November, 1943, pp. 331-335.)
707	19662	Germany ...	*Electromagnetic Separators for Various Industrial Purposes.* (Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, pp. 81-82.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			PRODUCTION.
			Organisation and Control.
708	18558	G.B. ...	... *Quantity Control (Production, Organisation, etc.).* (Automobile Engineer, Vol. 34, No. 445, January, 1944, pp. 12-14.)
709	18912	U.S.A.	... *Control for Conservation of Aircraft Materials.* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 249, 463.)
710	18915	U.S.A.	... *Models Help in Production Planning.* (H. G. Groehn, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 260-264, 286.)
711	19084	G.B. ...	... *Statistical Methods for Government Departments.* (Nature, Vol. 153, No. 3,872, 15/1/44, pp. 88-89.)
712	19452	U.S.A.	... *Aircraft Production Analysis (Key to Assembly Line Efficiency)—Part I.* (L. F. Dorman, Aviation, Vol. 42, No. 11, November, 1943, pp. 148-152, 332.)
713	19593	U.S.A.	... *Inspection Efficiency—I.* (J. C. Edwards and W. N. Bennett, Machinist, Vol. 87, No. 38, 8/1/44, pp. 236D-237D.)
714	19659	Germany	... *Standardisation and Science.* (O. Kienzle, Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, pp. 68-76.)
715	19660	Germany	... *25 Years of German Standards.* (W. Parey, Z.V.D.I., Vol. 87, No. 5-6, 6/2/43, pp. 76-77.)
716	19816	G.B. ...	... *Production Engineering Abstracts.* (J. Inst. Prod. Eng., Vol. 23, No. 1, Jan., 1944, pp. 1-12.)
717	19838	U.S.A.	... *Design for Mass Production (How the Engineering Department Can Help the Tooling Man, Particularly in the Aircraft Industry) (Symposium).* (Various authors, Mechanical Engineering, Vol. 66, No. 1, Jan., 1944, pp. 22-28.)
718	19973	G.B. ...	... *Bibliography on Welding Costs.* (The Institute of Welding, Feb., 1943, pp. 1-2.)
			Research and Training.
719	18544	G.B. ...	... *U.S. Expenditure on Research (Figures).* (Flight, Vol. 45, No. 1,829, 13/1/44, p. 32.)
720	18580	G.B. ...	... *Suggested New School of Aeronautical Science in G.B.* (Nature, Vol. 152, No. 3,867, 11/12/43, p. 686.)
721	18581	G.B. ...	... *Function of Special and General Libraries.* (Nature, Vol. 152, No. 3,867, 11/12/43, pp. 687-688.)
722	18634	G.B. ...	... *Education in 1943 (including Syllabuses for Institution Examinations).* (Engineer, Vol. 177, No. 4,592, 14/1/44, pp. 27-28, 32-33.)
723	18761	G.B. ...	... *The Engineering Outlook. I—Retrospect and Prospect (Survey of British Production, Industrial Organisation, etc.).* (Engineering, Vol. 157, No. 4,069, 7/1/44, pp. 14-15.)
724	18839	G.B. ...	... *Report on Scientific Research and the Universities in Post-War Britain.* (Journal of Scientific Instruments, Vol. 20, No. 12, Dec., 1943, p. 199.)
725	18998	U.S.S.R.	... *The U.S.S.R. Academy of Sciences.* (Nature, Vol. 152, No. 3,866, 4/12/43, pp. 653-654.)

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726	19006	G.B.	...	*Information Exchange Effects of Specialisation (Need for a Central Bureau of Technical Information).* (B. Kaiser, Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 68.)
727	19069	G.B.	...	*Library Service in Great Britain (Proposals by the Council of the Library Association).* (Nature, Vol. 152, No. 3,869, 25/12/43, pp. 733-734.)
728	19248	G.B.	...	*Apprenticeship Training (Electrical Firms).* (Electrical Times, Vol. 105, No. 2,725, 13/1/44, p. 57.)
729	19276	G.B.	...	*Training and Recruitment for Public Services.* (Nature, Vol. 153, No. 3,873, 22/1/44, pp. 91-94.)
730	19512	G.B.	...	*Scientific Industrial Research.* (Engineering, Vol. 157, No. 4,073, 4/2/44, pp. 91-92.)
731	19520	China	...	*Research Activities in China.* (Endeavour, Vol. 2, No. 8, Oct., 1943, p. 147.)
732	19617	Canada	...	*The Problem of Women Workers (Vultee Aircraft Study).* (Canadian Aviation, Vol. 16, No. 11, Nov., 1943, pp. 78-80.)
733	19658	Germany	...	*Standardisation and Evolution.* (W. Hellmich, Z.V.D.I., Vol. 87, Nos. 5-6, 6/2/43, pp. 65-67.
734	19721	G.B.	...	*Training Metallurgists.* (Metal Industry, Vol. 64, No. 6, 11/2/44, p. 81.)
735	19744	G.B.	...	*Science and Industry.* (J. G. Bennett, Nature, Vol. 153, No. 3,874, 29/1/44, pp. 130-132.)
736	19821	G.B.	...	*Vacation Work for College Students.* (Engineering, Vol. 157, No. 4,074, 11/2/44, p. 112.)
737	19839	U.S.A.	...	*Wartime Research and Development—A Moulder of Engineering.* (H. V. Coes, Mechanical Engineering, Vol. 66, No. 1, Jan., 1943, pp. 29-31.)
738	19983	G.B.	...	*Bibliography on the Training and Education of Welders.* (The Institute of Welding, Aug., 1943, pp. 1-8.)
				Aircraft Production Methods.
739	18507	U.S.A.	...	*Fabrication of Tear Drop Tank (Lockheed).* (Iron Age, Vol. 151, No. 24, 17/6/43, pp. 64-65.)
740	18568	G.B.	...	*Salvaging Aircraft Structures in Process of Manufacture (Steel Tubing Repairs. Machined Parts, Sheet Metal Repair, Riveted Joints, etc.).* (R. L. Schleicher, Mechanical World, Vol. 114, No. 2,969, 26/11/43, pp. 609-613, 633-634.)
741	18704	Switzerland	...	*Device for Removing Loose Parts (Screw, Rivets, etc.) Before Assembling Structural Elements.* (Flugwehr und Technik, Vol. 5, No. 3, March, 1943, p. 82.)
742	18717	Switzerland	...	*Stress Investigations on Transparent Fuselage Noses (Replacement of Plexiglass by an Equivalent Tension Field).* (E. S. Schasly, Flugwehr und Technik, Vol. 5, No. 7, July, 1943, pp. 189-194.)
743	18723	Switzerland	...	*Flight Adjustments on Mass Produced Junkers Aircraft Before Release to the Front.* (Flugwehr und Technik, Vol. 4, No. 12, Dec., 1943, pp. 326-328.)

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744	18830	G.B.	*Organisation of the Manufacture of Parts (Detail Arrangements Necessary for the Control and Progress of Work in the Shops).* (D. Tiranti, Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 21-24.)
745	18832	G.B.	*Lockheed Chain-Line Assembly.* (H. W. Perry, Aircraft Engineering, Vol. 16, No. 179, January, 1944, pp. 26-28.)
746	18858	G.B.	*Typhoon Production.* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, pp. 64-65.)
747	18862	G.B.	*Heron to Typhoon (The Hawker Method of Fuselage Construction).* (Aeroplane, Vol. 66, No. 1,704, 21/1/44, pp. 72-73.)
748	18882	U.S.A. ...	*Laminated Aircraft Sub-Assemblies.* (Modern Plastics, Vol. 21, No. 1, Sept., 1943, pp. 81-82, 144.)
749	18900	U.S.A. ...	*"Cycleweld" Technique for Joining of Aircraft Parts (Using Thermosetting Plastic Under Heat and Pressure to Join Metal, Wood to Metal, Metal to Rubber or Plastic).* (F. M. Reck, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 183-187.)
750	18905	U.S.A. ...	*Building the Waco CG-4A Glider (Plywood Wings).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 208-215.)
751	18907	U.S.A. ...	*Aircraft Parts and Fixtures Manufactured at Herron-Zimmers Plant (Survey of Procedure in Cutting Tubes, Welding, Drilling, etc.).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 224-228.)
752	18909	U.S.A. ...	*Lofting Problems of Streamline Bodies (Part 19).* (C. N. Hartley and E. A. Liming, Aero Digest, Vol. 43, No. 5, November, 1943, pp. 230-232, 316.)
753	18910	U.S.A. ...	*Wrap Aircraft for Overseas Shipment (Pliofilm Raincoat).* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 237-242, 284, 288-290.)
754	18924	U.S.A. ...	*Power-Driving of Stud Bolts.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 369.)
755	18925	U.S.A. ...	*Wing Chord Divider Beam Aids Draftsmen in Layout Work.* (Aero Digest, Vol. 43, No. 5, November, 1943, pp. 369-371.)
756	18926	U.S.A. ...	*Deburrer for Lightening Holes Speeds Bulkheads Output.* (Aero Digest, Vol. 43, No. 5, November, 1943, p. 375.)
757	18984	G.B.	*Methods Used in Germany for Anodising Aluminium Alloy Aeroplane Parts.* (Metal Treatment, Vol. 10, No. 35, Autumn, 1943, p. 198.)
758	19005	G.B.	*Friction Cutting by High Speed Band Saws (Bell Process).* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 66.)
759	19007	G.B.	*Steel Tube Airscrew Blades Production Technique of the American Propeller Corporation.* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 71-75.)

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760	19009	G.B.	*Small Scale Assembly—Quantity Production to the Assembly of Intricate Gyro Control Mechanism.* (L. H. Whatley, Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 79-84.)
761	19012	G.B.	*The Weibel Electric Welding Process (German Information Regarding its Application for Aircraft Construction). (R.T.P.3 Translation No. 2,013.)* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, pp. 93-95.)
762	19013	G.B.	*Resistance Welding—a Philips Development for Heavy Gauge Light Alloy Work.* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 98.)
763	19015	G.B.	*Development of Boeing Flying Fortress (Table).* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 102.)
764	19016	G.B.	*Laminated Wood Tubes (Employed in Assembly to Form Aircraft Structural Units (Patents).* (Aircraft Production, Vol. 6, No. 64, Feb., 1944, p. 103.)
765	19156	G.B.	*Second Thoughts on Production Illustration.* (E. J. Rice, Aeronautics, Vol. 9, No. 4, November, 1943, p. 55.)
766	19196	G.B.	*Japan's Aircraft Output.* (Aeronautics, Vol. 9, No. 5, Dec., 1943, p. 33.)
767	19247	G.B.	*Infra-Red Heating in Aircraft Assemblies.* (Electrical Times, Vol. 105, No. 2,725, 13/1/44, pp. 53-54.)
768	19317	G.B.	*Fighter Plane Mass Production (Special Tooling, Labour Saving and New Methods at the Curtiss-Wright Plant).* (Machinery, Vol. 63, No. 1,615, 23/9/43, pp. 337-341.)
769	19326	G.B.	*Grinding Steel Crankcases for Aircraft Engines.* (Machinery, Vol. 63, No. 1,627, 16/12/43, pp. 681-686.)
770	19333	G.B.	*Grinding Aero Engine Crankcases.* (Machinery, Vol. 64, No. 1,630, 6/1/44, pp. 11-13.)
771	19496	U.S.S.R. ...	*The Re-organisation of the Russian Aircraft Industry.* (Aeroplane, Vol. 66, No. 1,706, 4/2/44, pp. 130-131.)
772	19561	G.B.	*Infra-Red Heating Applied to Aircraft Assemblies.* (Mechanical World, Vol. 115, No. 2,979, 4/2/44, pp. 115-116.)
773	19602	U.S.A. ...	*Rapid Production of Knuckle-Pin Locking Plates for Air-Cooled Radial Aircraft Engines (Republic Aircraft Co.).* (Machinist, Vol. 87, No. 38, 8/1/44, pp. 89-95.)
774	19603	U.S.A. ...	*Grinding the Hub-End of One-Piece Steel Propeller Blades (Work Mounted in a Shuttle).* (Machinist, Vol. 87, No. 38, 8/1/44, pp. 96-97.)
775	19604	U.S.A. ...	*Methods for Cutting Aircraft Sheet Metal (Routing).* (Machinist, Vol. 87, No. 38, 8/1/44, pp. 98-100.)
776	19608	U.S.A. ...	*Budd's New All-Steel Cargo Plane for Navy.* (American Aviation, Vol. 7, No. 14, 15/12/43, p. 24.)

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777	19611	U.S.A. ...	"*Prestite*" (*Porcelain Produced by Westinghouse to Protect Aircraft Radio Systems at High Altitudes*). (American Aviation, Vol. 7, No. 14, 15/12/43, p. 87.)
778	19612	U.S.A. ...	*Water Injection Employed on Pratt and Whitney's Double Wasp Engines*. (American Aviation, Vol. 7, No. 14, 15/12/43, p. 90.)
779	19627	U.S.A. ...	*Review of Curtiss Aircraft Since* 1937. (Curtiss Fly Leaf, Vol. 27, No. 3, August, 1943, pp. 9-11.)
780	19643	U.S.A. ...	*Line Method Production of Engine Overhaul*. (L. H. Flatter, Aviation Maintenance, Vol. 1, No. 1, December, 1943, pp. 100-103.)
781	19616	Canada ...	*Aircraft Repair, Ltd.* (*Organisation and Installations*). (R. A. Keith, Canadian Aviation, Vol. 16, No. 11, Nov., 1943, pp. 73-76.)
782	19844	G.B.	*Infra-Red Heating as Applied to Aircraft Assemblies*. (Machinist, Vol. 87, No. 40, 27/1/44, p. 250E.)
783	19856	G.B.	*Methods for Cutting Aircraft Sheet Metal—III* (*Data Sheets*). (Machinist, Vol. 87, No. 40, 27/1/44, pp. 117-118.)
784	19858	U.S.A. ...	*Air Pockets Under Aeroplane Fabric Removed with Hypodermic Needle*. (Machinist, Vol. 87, No. 40, 27/1/44, p. 115.)
785	19859	Canada ...	*Planes Made in Canada* (*Map and Chart*). (Canadian Aviation, Vol. 16, No. 12, Dec., 1943, pp. 81-82.)
786	19861	Canada ...	*Production of the P.B.Y. Canso Amphibians* (*Canadian Vickers, Ltd.*). (Canadian Aviation, Vol. 16, No. 12, Dec., 1943, pp. 110-112.)
787	19862	Canada ...	*Production Breakdown Illustration*. (P. Madison Canadian Aviation, Vol. 16, No. 12, Dec., 1943, pp. 125-128.)
788	19942	G.B.	*Making Plastic Noses for Bombers*. (British Plastics, Vol. 16, No. 177, Feb., 1944, p. 94.)
789	19963	G.B.	*Welded Construction — Aircraft* (*Bibliography*). (The Institute of Welding, pp. 1-4.)
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790	18502	U.S.A. ...	*Hot Trimming of Shell Forgings*. (Iron Age, Vol. 151, No. 24, 17/6/43, p. 51.)
791	18632	G.B.	*Some Principles of Cold-Working. Part II—Application to the Manufacture of Artillery Cartridge Cases*. (D. A. Lloyd, Metal Industry, Vol. 64, No. 2, 14/1/44, pp. 25-28.)
792	18682	G.B.	"*Mago*" *Coupling Made by Metalastik, Ltd.* (A. Garrard, Engineers' Digest, Vol. 4, No. 12, Dec., 1943, pp. 357-358.)
793	19312	G.B.	*The Mass Production of Small Arms Ammunition* (*Remingtons*). (Machinery, Vol. 63, No. 1,611, 26/8/43, pp. 231-236.)
794	19366	G.B.	*The Manufacture of the Sten Gun*. (Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 85-89.)

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796	19527	G.B.	*Method of Calculating Shell Blank Diameters.* (K. Jackson, Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 263-264.)
797	19562	G.B.	*The Production Heat Treatment of Gears (Methods of Dealing with Distortion).* (Mechanical World, Vol. 115, No. 2,979, 4/2/44, pp. 117-120.)
798	19568	G.B.	*Automatic Forging of 90 mm. Shells.* (Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 95-96.)
799	19569	G.B.	*Method of Grinding Crankshafts on Centreless Grinders.* (E. E. Fluskey, Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 97-98.)
800	19572	G.B.	*Modern Machine Tool Production.* (T. P. N. Burness, Machinery, Vol. 64, No. 1,633, 27/1/44, pp. 101-102.)
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804	19962	G.B.	*Welded Construction — Rolling Stock (Bibliography).* (The Institute of Welding, Aug., 1940, pp. 1-5.)

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805	18501	U.S.A. ...	*25 per cent. Speed Increase by New Drilling Technique.* (W. A. Phair, Iron Age, Vol. 151, No. 24, 17/6/43, pp. 48-51.)
806	18503	U.S.A. ...	*Automatic Heat Treating in a Jobbing Forge Shop.* (Iron Age, Vol. 151, No. 24, 17/6/43, pp. 52-53.)
807	18506	U.S.A. ...	*Inspection History Stamped on Part.* (Iron Age, Vol. 151, No. 24, 17/6/43, p. 63.)
808	18807	G.B.	*Sensitometry of Drawing Office Photo-Printing Processes.* (H. Heywood, Engineering, Vol. 157, No. 4,070, 14/1/44, pp. 21-24.)
809	19067	G.B.	*X-Ray Examination Reduces Scrap (Routine Application of Radiography).* (Light Metals, Vol. 7, No. 72, January, 1944, pp. 30-33.)
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811	19273	G.B.	*X-Rays in Industry — Routine Crystallographic Analysis.* (Electrical Review, Vol. 133, No. 3,443, 19/11/43, pp. 685-686.)
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813	19314	G.B.	*Production Gauge Design and Dimensioning.* (Machinery, Vol. 63, No. 1,611, 26/8/43, pp. 237-240.)
814	19334	G.B.	*Infra-Red Paint Drying by Gas.* (Machinery, Vol. 64, No. 1,630, 6/1/44, pp. 14-18.)
815	19522	G.B.	*The Uses of Controlled Atmospheres in the Metal Industries. Part V—Ferrous Materials.* (Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 243-250.)
816	19526	G.B.	*Detecting Flaws in Sheets with Ultra-High Frequency Sound Waves.* (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 352-354.) (A. Trost, Sheet Metal Industries, Vol. 19, No. 202, February, 1944, pp. 255-257.)
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823	18504	U.S.A. ...	*Douglas Tube Bender Speeds Output.* (Iron Age, Vol. 151, No. 24, 17/6/43, pp. 54-57.)
824	18652	Germany ...	*Jig for Building up Composite Wing Spares* (739,610). (Junkers, Flugsport, Vol. 35, No. 16, 15/12/43, p. 73.)
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826	18733	Switzerland ...	*Fully Automatic Punch Riveting Machine Employed by Heinkel.* (H. Scholl, Flugwehr und Technik, Vol. 4, No. 11, Nov., 1942, pp. 296-297.)
827	18816	U.S.A. ...	*Industrial Control Instrument Settings.* (L. H. Allen, Industrial and Engineering Chemistry, Vol. 35, No. 12, December, 1943, pp. 1223-1229.)
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831	19600	U.S.A. ...	*Gauging Fixture Checks Bolt Recess.* (F. Scriber, Machinist, Vol. 87, No. 38, 8/1/44, pp. 87-88.)
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853	19751	G.B. ...	... *Humber Reconnaissance Car—Mark III.* (Automobile Engineer, Feb., 1944, pp. 43-52.)
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861	18560	G.B. ...	... *Electric Vehicle Charging—Non-Reversible Plugs and Sockets with Automatic Safety Interlock.* (Automobile Engineer, Vol. 34, No. 445, January, 1944, p. 20.)
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867	19117	G.B.	*The Riding and Wearing of Railway Carriage Tyres.* (C. W. Newberry, Engineering, Vol. 157, No. 4,071, 21/1/44, pp. 57-60.)
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870	18713	Switzerland ...	*Wireless Direction Finding.* (W. Rock, Flugwehr und Technik, Vol. 5, No. 7, July, 1943, pp. 182-185.)
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June, 1944

Abstracts from the Scientific and Technical Press

(No. 123. May, 1944)

AND

Titles and References of Articles and Papers Selected from Publications (Reviewed by R.T.P.3)

TOGETHER WITH

List of Selected Translations

(No. 69)

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(Prepared by R.T.P.3.)

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The Upper Limit of Projectile Velocity. (H. Pfriem, Z.f. Techn. Physik, Vol. 22, No. 10, 1941.) (123/1 Germany.)

The author assumes that the charge burns at infinite speed so that at the instant of combustion a pressure discontinuity arises at the end of the combustion chamber separating a region at pressure P_1 (constant volume combustion of powder) from the atmospheric pressure P_0 existing in the barrel. The surface of discontinuity resolves itself immediately into a compression shock (which travels at a velocity W along the air in the barrel towards the muzzle) together with a rarefaction which travels at sonic speed in the opposite direction (*i.e.*, towards the base of the gun). It is assumed that combustion chamber and barrel are cylindrical and of the same diameter and that the combustion chamber is sufficiently long compared with the barrel so that the rarefaction reflected at the base of the gun will not catch up the compression shock.

The maximum possible projectile velocity (absence of friction) is equal to the particle velocity of the compression shock generated under these conditions.

This upper limit can be easily calculated. Taking first the rarefaction, let

P_1 = absolute pressure,
a_1 = velocity of sound,
u_1 = particle velocity,
γ_1 = specific heat ratio,

in the combustion space in the region not yet reached by the rarefaction.

Similarly, let the same quantities with the suffix e refer to conditions behind the rarefaction. We have

$$P_e/P_1=(a_e/a_1)^{2\,\gamma_1/(\gamma-1)} \quad . \quad . \quad . \quad . \quad . \quad (1)$$

$$a_1-a_e=\tfrac{1}{2}(\gamma-1)\,u_e \quad . \quad . \quad . \quad . \quad (2)$$

$$(u_1=0)$$

Eliminating a_e from (1) and (2)

$$P_e/P_1=\{1-\tfrac{1}{2}(\gamma_1-1)(u_e/a_1)\}^{2\,\gamma_1/(\gamma_1-1)} \quad . \quad . \quad . \quad (3)$$

Similarly, if we consider the compressions shock by itself, we have

$$\frac{P_n}{P_o}=\left\{\frac{2\gamma_o}{(\gamma_o+1)}\right\}\left(\frac{W}{a_o}\right)^2-\frac{(\gamma_o-1)}{(\gamma_o+1)} \quad . \quad . \quad . \quad (4)$$

$$\frac{u_n}{a_o}=\left\{\frac{2}{(\gamma_o+1)}\right\}\left(\frac{W}{a_o}-\frac{a_o}{W}\right) \quad . \quad . \quad . \quad . \quad (5)$$

where the suffixes n and o refer to the respective conditions behind and in front of the shock, W being the wave velocity of the latter.

From (4) and (5) we can eliminate W and obtain

$$\left(\frac{u_n}{a_o}\right)^2=\left(\frac{2}{\gamma_o}\right)\left\{\frac{(P_n/P_o-1)^2}{[(\gamma_o+1)(P_n/P_o)+(\gamma_o-1)]}\right\}. \quad . \quad . \quad (6)$$

Now in the absence of friction, the region behind the compression shock must have identical properties with that behind the rarefaction. We therefore have

$$u_n=u_e=u \text{ and } P_n=P_e=P.$$

Substituting for P_n in (6) the value P_e given by (3) we have finally for the required particle velocity

$$\left(\frac{u}{a_o}\right)^2=\left(\frac{2}{\gamma_o}\right)\frac{[(P_1/P_o)(1-\frac{1}{2}(\gamma_1-1)(u/a_1)^{2\,\gamma_1/(\gamma_1-1)}-1]^2}{[(\gamma_o+1)(P_1/P_o)(1-\frac{1}{2}(\gamma_1-1)(u/a_1)^{2\,\gamma_1/(\gamma_1-1)}+(\gamma_o-1)]}$$

This expression is best plotted in the form (u/a_1) as a function of (P_1/P_o) with (a_1/a_o) as parameter, with suitable values for γ_1 and γ_o (*e.g.*, 1.25 and 1.41 respectively).

It is easily seen that (u/a_1) tends to an asymptotic maximum value for $(P_1/P_o)\to\infty$ given by

$$u/a_1=2/(\gamma_1-1)=8\ (\gamma_1=1.25).$$

The maximum possible particle velocity behind the shock waves is thus reached if there is a vacuum in the gun barrel and amounts then to eight times the sonic velocity of the combustion gases immediately after explosion. With $a_1=1{,}000$ m./sec. the upper limit is thus 8,000 m./sec. If, however, the barrel contains air at atmospheric pressure, P_1/P_o is finite and particle velocity is reduced considerably.

Thus, for example, with $P_1=12{,}600$ kg./cm.^{2} and $P_o=1$ kg./cm.^{2}, $u/a_1=3$, *i.e.*, $u=3{,}000$ m./sec. which is in satisfactory agreement with experimental values (extrapolated to zero projectile weight). This at once raises the possibility of increasing the muzzle velocity of long range guns by either evacuating the barrel or replacing the air by H_2 at atmospheric pressure.

Reduction of P_o at 1/100 ata would raise the limiting speed from 3,000 to 4,600 m./sec., whilst the replacement of the air by H_2 gives a theoretical speed of 4,000 m./sec. It should, however, be pointed out that these figures refer to limiting cases when the ratio of charge weight the projectile weight is very large and friction is neglected.

In the practical case, the advantages of either lowering P_o or raising a_o will be less.

An experimental investigation is being contemplated.

Heat Transfer and Pressure Loss in Laminar and Turbulent Flow Through a Slot. (E. Altenkrich, Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44, p. 105.) (123/2 Germany.)

During laminar flow, the heat transfer coefficient α is independent of the speed of flow w. When the flow becomes turbulent, w increases very suddenly to about twice its former value and with further increases of speed varies as $w^{\frac{1}{3}}$. The flow resistance increases, however, at a still faster rate with speed so that this method of improving heat transfer soon reaches a practical limit.

The author points out that by restricting the flow to very narrow passages, very high values of α can be obtained, although the flow is still laminar. In this case α varies inversely as the slot width "a" and by having a large number of such slots in parallel, the requisite flow passage can be obtained with a very small pressure loss.

It appears that heat exchangers built on this principle will find special application in closed circuit hot or cold air engines.

The Basis of Compact Heat Exchanger Design. (O. Walger, Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44, p. 105.) (Digest.) (123/3 Germany.)

The aim of efficient design is to provide the highest possible heat transfer coefficient α accompanied by a permissible pressure drop. Provided the temperature drop is not excessive and the Prandtl number relatively small, the simple exponential formulæ of Nusselt-Krausshold and Haussen give reliable information on the best compromise to be effected. More recent investigations have dealt with the problem of longitudinal and lateral flow through nests of tubes. For large relative temperature changes (corresponding to $l/d > 200$ for longitudinal flow) and the same total pressure drop, it appears that the total tube surface required is about the same for longitudinal as for lateral flow. If, however, the relative temperature difference is small (corresponding to relatively short tubes in longitudinal air flow) the nest exposed to lateral flow becomes more efficient and this type of flow will therefore lead to a saving in material.

A Statistical Theory of the Strength of Materials. (W. Weibull, Ing. Vet. Akad. Proceedings No. 151, 1939.) (123/4 Sweden.)

According to the classical theory of elasticity, the ultimate strength of an isotropic material is reached when the stress at any point in the material exceeds a certain critical value. In practice, however, data on ultimate strength of a so called isotropic material show appreciable scatter, even if extreme care is taken to exclude extraneous influences. Now if the results are distributed along a probability curve $S=f(\sigma)$ so that for very low stresses the probability of rupture $S=0$ and for very heavy stresses $S=1$, the calculus of probability at once leads to the conclusion that

$$\log(1-S) = -\int_V n(\sigma)\, dv$$

where $n(\sigma)$ is a characteristic function of σ depending on the material and may be interpreted as the number of weak places per unit volume of the material which cause rupture at a stress equal to or less than σ.

For brittle substances, it appears that $n(\sigma)$ takes the simple form $n(\sigma)=k\sigma^m$ when k and m are constants.

Under these conditions, an increase in volume of the test specimen causes both the ultimate strength and standard deviation to decrease. The relative dispersion, on the other hand, is independent of V and a function of m only.

It is also easily shown that for the same volume, the ultimate strength in bending or torsion is greater than in pure tension. Similarly, the ultimate tensile strength diminishes rapidly if two or three dimensional tensile stress instead of one dimensional stress is employed.

In conclusion, the author gives some experimental data on rods made of a mixture of stearic acid and plaster of paris which are in good agreement with the above conclusions.

It will be noted that the whole theory depends on the fact that the experimental strength values do indeed fall on a characteristic probability curve.

The Phenomenon of Rupture in Solids. (W. Weibull, Ing. Vet. Akad. Proceedings No. 153, Stockholm, 1939.) (123/5 Sweden.)

The author has given the fundamentals of a statistical theory of the strength of materials in a previous number of this series (151) (Abstract 123/4). According to this theory, an isotropic body is defined as one in which the probability of rupture in a given volume element is a mathematical function of the stress, the constants defining this function (so-called distribution constants) being independent of the direction of stress or the position of the volume element in the solid under consideration. In the previous paper, the author suggested that this distribution function might be of a relatively simple exponential form (so-called elementary form), and the few experimental data supplied seemed to bear out this contention. Further investigation described in the present paper show, however, that in most cases the distribution function is more complex, being the resultant of two or more elementary functions. The author, moreover, finds it now necessary to differentiate between so-called " regular " bodies (in which formations of cracks continues so long as the edge of the crack is subjected to tensile stresses) and " irregular " bodies (in which the crack is arrested when it reaches certain surfaces inside the body).

Sugar is a representative member of the class of " regular " bodies whilst porcelain belongs to the " irregular " group.

The mathematical expression for the probability of rupture of these two classes is very different, although both can be represented by two elementary (exponential) components.

This is shown from statistical tests on both these substances. It is proposed to present further experimental data in subsequent monographs, each dealing with a particular material.

The Consolidation of Large Surface Areas with Cement. (Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44, p. 111.) (123/6 Germany.)

When large dumps are planned, it is necessary to consolidate the ground surface and for this purpose a separate concrete surface layer about 6 in. thick is generally provided. This entails a considerable amount of work if carried out in the normal manner.

Experience in road making in the East (U.S.S.R.) has, however, shown that in many cases very good results can be obtained much more simply by adding the concrete directly to the roughly dug ground, spraying with water and then rolling down firmly. Apart from excavators for levelling, quite simple machines such as tractors, ploughs, harrows and rollers suffice and it is stated that a team of 11 men (three engineers, two tractor drivers and six labourers) can reinforce about 1,000 m.^{2} of ground to a depth of six inches in eight hours.

The first step is the removal of vegetation with a harrow. The ground is then levelled and ploughed, soft parts being filled in and rolled. Six inches of gravel are next spread uniformly and mixed well with the ground. A uniform layer of concrete follows which is again mixed thoroughly with the soil and finally water is added. Both the quantity of concrete and water required depend on the nature and moisture content of the soil and are determined beforehand. The surface is then rolled, raked and again rolled, and finally covered with damp ash.

The Centrifugal Casting of Gear Wheels. (Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44.) (123/7 Germany.)

Centrifugal castings made of steel, cast iron and some other metals are generally stronger than those obtained by the normal process. In addition, there is less wastage of materials and the mould is simplified, thus reducing cost in mass production.

The process was originally applied to tubes. Cylinder liners, valve seats and brake drums soon followed and during the last few years centrifugally cast steel gear wheels have received wide application.

Some of the steel dies employed for this purpose with vertical axis of rotation are illustrated, suitable for either single or stepped gears.

The steel die is generally made of two parts, the lower part being rigidly attached to the rotor, whilst the removable upper portion is held in position by a system of pivoted levers which lock under centrifugal action. Before closing the die, a sand core is inserted in the lower part which produces the necessary recesses in the gear wheel and also protects the die from the impact of the molten steel. It should be noted that the external portions of the wheel must be in direct contact with the steel die. Similar inserts are provided in the more complicated die illustrated. A composite unit of 18 dies of this type will produce nine stepped gears per minute.

Centrifugally cast gears have the same strength and behave in practice just as forged gear wheels.

Flash Butt Welding for Tool Tips. (A.E.G., Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44, p. 27 (Adv. Section).) (123/8 Germany.)

In order to conserve materials, it has been common practice to use composite tools, in which a plate of high speed steel destined for the cutting edge is attached to a holder made of cheap structural steel. The attachment is usually carried out by brazing or fusion welding with the addition of filings and borax. The employment of flash butt welding for this process presents many advantages and the special tool holder developed by the AEG for this purpose and which can be used in conjunction with a standard flash butt welding machine is illustrated. The tool clamp proper consists of an upper and lower jaw made of steel, whilst the plate clamp for the high speed tool tip is made of copper in order to equalise the electrical resistance. The strength of the flash weld is very great and the weld zone can be even subsequently forged if necessary. The heat zone is very limited and there is no danger of the high speed plate being burnt. It is even possible to use plates already hardened so that the tool only requires grinding before being ready for use. The use of unhardened material is, however, generally recommended, as this facilitates grinding and at the same time enables the weld to be subjected to a proper test. For subsequent hardening, the temperature most favourable for the high speed plate can be chosen without any danger of the weld cracking.

Set Backs in the Wartime Expansion of the Light Metal Industry. (Inter. Avia., Nos. 913-914, 4/4/44, pp. 1-9.) (123/9 U.S.A.)

ALUMINIUM.

The expansion of the American Aluminium Industry was originally mainly financed by the two leading firms concerned—the Aluminium Company of America and Reynolds Metal Co. and by the end of 1941 a total output of about 600 million lb. was achieved. This was stepped up by the Government financed expansion programmes of 1941 and 1942, which set up about a dozen additional plants, and also arranged for manufacturing facilities in Canada. Finally, in 1943, a combined Aluminium Board in which the U.S.A., Canada and Great Britain are represented was set up for the production and allocation of aluminium

among the United Nations. As a result of these activities, the total aluminium supplies reached over 3,000 million lb. in 1943. The phenomenal growth over the last few years is show in the following table (figures in million lb. units).

	Year.				
	1937.	1940.	1941.	1942.	1943.
U.S. Production	327	415	615	1042	1840
Canadian Production	170	218	415	672	1006
U.S. Scrap	50	?	?	370	528
Total Supplies	547	(633)	(1030)	2084	3374
Structural Weight of U.S. Built Aircraft	?	?	87	291	742
Ditto as a percentage of U.S. Al. Production	?	?	14%	28%	40%

Toward the end of 1943, a reserve of over 100 million lb. of aluminium not urgently needed had accumulated and large quantities of Canadian aluminium, originally earmarked for the U.S.A., could be placed at the disposal of Great Britain and the U.S.S.R. The supply is now in excess of demand and a large number of the 60 plants operating in the U.S.A. at the beginning of 1944 are being closed down, thus cutting production to approximately one half.

Magnesium.

In 1938 the total magnesium production in the U.S.A. amounted to less than 5 million lb. and was thus quite insufficient to cover any wartime requirements. The American War Production authorities have so far spent about 500 million dollars (mainly in the form of financial assistance to the leading producer, Dow Chemical Co.) so as to build up plants with an annual capacity of 700 million lb. by 1943 (150 times pre-war capacity). Actual production lagged, however, considerably behind estimate, with the result that the estimated requirements of about 450 million lb. for that year were not met. This is shown in the following table.

1939	6 million lb.
1940	12½ ,,
1941	33 ,,
1942	100 ,,
1943	391 ,,

As a result, the managements of several of the plants were severely criticised by the Truman Committee. Meanwhile the lack of magnesium has been made good by drawing on aluminium supplies and replacing magnesium incendiaries to a large extent by phosphorous bombs. The position, in spite of the waste disclosed, is thus not considered dangerous, especially as Canada, after covering its own needs in 1943, is now reported to be ready for export. The magnesium production in Great Britain during the war period is not known. In 1939 about 11 million lb. were produced. From the Report of the House of Commons Select Committee on National Expenditure it appears that till recently there were four firms producing magnesium in Great Britain, each of which used a different process at a cost ranging from 1s. 6d. to over four shillings a lb. (The average price of magnesium in the U.S.A. was of the order of 20½ cent. or 1s. a lb. in 1943.)

Two of the processes had never been tried before on a large scale and are now to be closed down entirely. Production at the other two plants is being curtailed, imports from America meeting the difference. This is rendered easier by the reduction in the magnesium content of modern incendiary bombs.

Very rapid expansion of the light metal industry, both in the U.S.A. and in Great Britain,* was purely a wartime measure and it will be difficult to find a peace time market for the enormous plants now in operation.

Training Accidents in the U.S.A. (Inter. Avia., No. 906, 12/2/44, p. 18.) (123/10 U.S.A.)

Before the war, 1.3 per cent. of all Army student pilots were killed in training. This rate has risen to 2.0 per cent. since the war. In primary, basic and advanced flying training the rate of fatal accidents (each of which may cause more than one fatality) has remained approximately at pre-war level, but in operational training the rate has risen from 82 fatal accidents for 1,000,000 flying hours to 182 fatal accidents. As regards individual fatalities, the operational training rate has risen from 145 fatalities for 1,000,000 hours to 521 fatalities. A brief analysis given the following principal accident causes: Pilot and ground crew errors are responsible for 48 per cent. of the accidents, failure of equipment for 12.4 per cent.; the causes of one-third of all accidents are undetermined. The most frequent type of fatal accident is collision in full flight with mountains, trees, telephone poles, etc. (not a take-off or landing?), while collision with other aircraft accounts for only 8.5 per cent. of all accidents.

The Effect of Propeller Thrust on the Take-off Distance. (F. Roth, Flugwehr und Technik, Vol. 6, No. 1, Jan., 1944, pp. 23-28, and No. 2, Feb., 1944, pp.52-54.) (123/11 Switzerland.)

The take-off distance of an aircraft includes the ground projection of the initial flight path to clear a 20 m. obstruction under steady climb conditions. It thus consists of the following portions:—

(1) Ground run proper till aircraft unsticks.
(2) Transition arc, during which excess lift is utilised to balance the associated centrifugal force, the aircraft gaining about 10 m. in altitude.
(3) The climb proper to 20 m.

Of the above (2) is difficult to calculate since the exact shape of path depends markedly on the way the aircraft is handled and the corresponding horizontal projection of the flight path is thus uncertain. Compared with (1) and (3), the distance involved is relatively small and is neglected by the author. This simplification is rendered even more permissible if, as is done by the author, the projection of the final climb to 20 m. is reckoned from ground level and will thus automatically include a portion of the arc. Under these conditions, the author shows that the total take-off distance D is given by

$$D = \frac{(G/F)}{\gamma C_a \left[S_m/G - \frac{1}{2}(\mu + \epsilon_a)\right]} + \frac{h}{(S_a/G - \epsilon_a)}$$

where G = weight of aircraft.
F = wing area.
C_a = lift coefficient at unsticking.
S_m = mean propeller thrust during ground roll.
S_a = propeller thrust during climb to 20 ft.
μ = coefficient of ground friction.
ϵ_a = drag/lift ratio at unstick.
γ = air density.

A short take-off distance thus mainly implies small (G/F), large C_a and large thrust values S_m and S_a.

Since modern high speed aircraft only function efficiently at a high wing loading and since the maximum value of C_a is also limited (leaving out of account possible further improvement by boundary layer suction), an increase in the thrust value offers the most immediate prospect of reducing the take-off run.

The author is of the opinion that this line of development has been rather neglected and points out that by simply increasing the solidity (=total blade area/disc area) from the normal value of about .10 to about .15 or .2, the static thrust can be increased by at least 30 per cent. This can be increased to about

50 per cent., if an increase in propeller diameter of the order of 10 per cent. is permissible. It is true that this increase in solidity and diameter must be accompanied by a corresponding increase in propeller weight and a 50 per cent. increase in thrust may have to be paid for by a 10 per cent. increase in the weight of the propeller. Since under normal conditions, the propeller accounts for only about 2·5 per cent. of the total weight of the aircraft, even doubling this proportion will not raise the wing loading unduly. In any case, the increase is well worth while if at the same time a 50 per cent. increase in thrust can be obtained. The author has calculated the changes in take-off run for a number of standard aircraft, the wing and power loading of which ranged from 160 to 306 kg./m.^{2} and from 2·3 to 4·5 kg./h.p. respectively. By doubling the solidity of the standard propeller, the total take-off run could be reduced by amounts ranging from 100 to 200 m. Even in the most unfavourable case (combined high wing and power loading) a total distance of 700 m. sufficed to clear the 20 m. obstacle.

These conclusions are specially important at the present time for the planning of aerodromes for post-war civil aviation.

The Effect of Oxygen Deficiency on the Human Organism During Short Time Exposure to High Altitude Conditions. (F. V. Tavel, Helvetica Physiologica and Pharmacologica Acta Suppl. I, 1943.) (123/12 Switzerland.)

After a historical survey of the problem, the author discusses about 300 tests carried out in the Low Pressure Chamber of the Physiological Institute of Zurich.

All the test subjects were Swiss Army Pilots, the age groups (21—25) and (25—35) being represented about equally. For the majority of the tests (about 200 cases) the following standard procedure was adopted:—

(1) Ascent to 5,000 m. in 10 minutes and stay at this altitude for 10 minutes.
(2) Ascent from 5,000 to 6,000 m. in 2 minutes and stay at 6,000 m. for 10 minutes.
(3) Ascent from 6,000 to 7,000 m. in 2 minutes and stay at 7,000 m. for 15 minutes.
(4) Drop to 6,000 m. in 2 minutes and stay at 6,000 m. for 10 minutes.
(5) Drop from 6,000 m. to 5,000 m. in 2 minutes and stay at 5,000 m. for 10 minutes.
(6) Drop from 5,000 m. to the ground in 5 minutes.

During the tests (which altogether lasts 1 hr. 23 min.) blood pressure and pulse rates were recorded and the candidates were required to write down columns of figures (1,000 downwards), since the handwriting (muscular control) and effort involved throw valuable light on the physical and mental state of the candidate. At 7,000 m. the test subjects were also required to write down general impressions of their state or anything else which might strike them of special interest, great care being taken not to suggest the type of answer expected. Every endeavour was made to put the candidates at their ease and encourage free conversation, the greatest attention being paid to spontaneous behaviour. The tests were generally carried out simultaneously on two to three candidates, together with the doctor in charge, who, of course, is provided with a mask. It is generally admitted that for rates of ascent of the order utilised and altitude up to 7,000 m. the physiological effects observed are almost entirely due to the reduction in the partial pressure of the oxygen and similar results can be obtained by breathing N_2 diluted air mixtures at normal pressure through a mask. Although this method of test is much cheaper than the low pressure chamber, and would not subject the doctor in charge to any strain, it is not recommended by the author, mainly because the wearing of a tight fitting mask during the relatively long test period creates artificial conditions (discomfort) which reduce the altitude resistance of the candidate. Observation of facial expression

is also rendered difficult if a mask is worn by the candidate and there is always the danger that a coughing fit will cause leakage and thus falsify the results. On the other hand, the altitude chamber tests, although free from these defects, subject the doctor in charge to severe strain and if repeated at too close intervals impair his critical faculty and render him restless and irritable. Long periods of sleep are required for full recovery. For this reason, the same doctor should not supervise more than a dozen low pressure tests spread over a period of about three weeks.

RESULTS OF TESTS.

Of the 200 odd cases examined, 28 exhibited altitude collapse in various degrees, 13 candidates at 6,000 m. and 15 at 7,000 m. Of these cases, eight were accompanied by grave symptoms (4 at 6,000 m. and 4 at 7,000 m.). Five of these cases required oxygen administration. The remaining cases of collapse were all of the passing phase type, the candidates fully recovering by their own efforts. Whilst, in the majority of cases, liability to collapse was indicated by abnormalities in pulse and blood pressure, three cases of heavy collapse at 7,000 m. occurred very suddenly without any apparent warning.

The tests seem to indicate that the liability to collapse is more pronounced in the lower age group. This is brought out in the following table:—

		Cases of Collapse.	
Age Group.	No. of Candidates.	Heavy.	Passing Phase.
21-25	103	5 (5%)	11 (11%)
26-30	71	3 (4%)	6 (8%)
31-46	39	1 (2½%)	2 (5%)

It should, however, be pointed out that the older pilots had been actively engaged in flying over a number of years and therefore represented a more or less selected group, abnormal individuals having been already weeded out automatically. Ruling out the 28 cases of collapse detailed above, the remaining candidates exhibited the following average variation in circulatory constants during the tests.

	Altitude (m.).				
		Ascent.		Descent.	
	0	5000	7000	5000	0
Pulse frequency	78	93	105	90	74
Blood pressure (diastolic) mm. Hg. ...	75	70	62	68	76
Blood pressure (systolic) mm. Hg. ...	125	132	132	122	115
Rel. minute volume (red. amplitude × pulse frequency)	55	68	82	62	48

Whilst the above table shows general tendencies, there are considerable individual variations. There is evidence that the youngest age group exhibits a more pronounced diastolic pressure drop at altitude, combined with high values for the rel. Minute Volume, and this may account for the greater tendency to collapse for this group as already noted above.

Speaking generally, a symmetrical variation of the circulatory functions during ascent and descent as exhibited in this table denotes normal altitude resistance of the individual. Tendency to collapse is indicated by an abnormal drop of diastolic pressure followed by a diminution of systolic pressure and a marked decrease in pulse frequency. This pre-collapse condition is often accompanied by a feeling of warmth (perspiration), pallor and pupil contraction. Loss of consciousness invariably follows a drop of systolic pressure below 80 mm. of Hg. but pressure of the order of 100 mm. produce in general only sleepiness and general apathy. It should, however, be emphasised that these abnormalities in the circulatory functions indicate tendencies only and it does not by any means follow that a serious collapse will actually take place.

Individual cases vary widely and it is evident that the relatively simple data regarding blood pressure and pulse rate are not by themselves sufficient to indicate a pending crisis. Attempts to use electrocardio diagrams for this purpose also led to similar uncertainties (30 separate experiments at varying altitudes up to 8,000 m.). The author is, however, of the opinion that an accurate determination of the pulse wave velocity may furnish the required criterion. For this purpose he has designed a piezo electric pressure recorder, which is actuated by the pulse and modulates the grid potential of the first stage amplifier of the electrocardiograph. The combined record thus gives the relative pulse wave velocity (time between R beat and rise of pulse pressure) and by making the measurement at two points of an artery, the absolute pulse wave velocity can be determined.

The author states that under more or less stable circulatory conditions, the pulse wave velocity is remarkably constant, but undergoes changes when the organism experience difficulties in adapting itself to the new conditions. It is too early yet to state whether this method of experimentation will prove of use in low pressure tests.

It is obvious that the human organism undergoes very complicate readjustment when exposed to oxygen want. A displacement in the timing or actual failure in any one of the steps of this process may lead to collapse, which may be regarded as the last self protective measure at the disposal of the individual. When in a mild form, the collapse resembles sleep and the individual will recover after a period of his own accord, feeling refreshed and probably capable of standing a further increase in height without trouble.

It is evident that during the " sleep " period, when oxygen requirements were cut automatically to a minimum, the organism was capable of completing its readjustment and even build up reserves. In the heavy form of collapse, however, this adjustment may fail in spite of minimum oxygen consumption. There is complete loss of consciousness and recovery is problematical unless oxygen is administered or a lower altitude reached quickly. A simple instrumental test thus having failed to indicate danger of collapse (which, in view of the complexity of the causes, is not surprising), the doctor in charge has to pay increased attention to other symptoms, such as: deterioration of muscular control, tremor, inarticulate speech, bad or restricted vision, loss of critical faculties, so-called attention " peaks " (during which the test subject can regain control by a great effort), etc.

It is only the experienced medical observer who can evaluate these symptoms and only repeated tests on the same individual will enable him to express an opinion. Quite apart from this, however, the altitude chamber has proved of enormous value in familiarising the pilot with some of the symptoms and demonstrate that his vaunted altitude resistance may vary considerably on different days. The loss of critical faculty constitutes a special danger and the extreme suddenness of some types of collapse will emphasise the need of being thoroughly familiar with the manipulation of emergency controls, including oxygen supply.

Although the normal pilot will generally stand short time exposures to 7,000 m. without breathing oxygen provided he is in a comfortable sitting position and not doing heavy manual work, discomfort (especially cold), combined with the excitement of aerial combat, may rapidly drain his reserves. Under such conditions, warning symptoms, coupled with the well-known loss of critical faculty, may pass unnoticed and the collapse occurs very suddenly.

The low pressure chamber test is not to be regarded as a criterion of the ultimate height resistance. It will, however, definitely weed out cases which have subnormal oxygen reserves and will keep them from high altitude flying till the cause of the abnormality has been ascertained. A mobile unit should therefore be attached to every high altitude squadron and the pilots examined at frequent intervals.

Electric Fuel Flow Meter of the Sampling Type. (Z.V.D.I., Vol. 87, Nos 35-3 4/9/43, p. 556.) (123/13 Germany.)

Flow meters of the sampling type (in which the time for the consumption of a given volume is measured with a stop watch) are not very suitable for use on aircraft since the observer has generally to take simultaneous readings on a number of other instruments and can ill spare the time for operating the stop watch accurately. Devices in which the passage of the fuel past the measuring marks automatically controls the stop watch are not novel. Their use on aircraft has, however, not been general, either due to complications or lack of reliability.

The instrument described by the author is stated to operate reliably and with ample accuracy under all normal flying conditions. Its essential feature consists in the type of magnetic relay employed which is operated by a thin steel float placed in a gauge tube of non-magnetic material communicating with the measuring vessel. The iron core of this relay is housed in a recess of the gauge tube, the wall thickness of which is cut down in this region to a few tenths of a millimeter. This is essential in order to reduce the airgap between float and core to a minimum and can be carried out without impairing the strength of the tube by very careful fitting. The relay operates directly by the increased magnetic flux due to the passage of the float, and since the latter is very thin, the need of working with the smallest possible airgap is obvious.

The relay response was investigated experimentally by recording the actual position of the float by an inductive method at the instant of operation. The maximum position error was found to be no more than ± 1 mm. over the full range of flow corresponding to a volume error of less than .2 per cent. (total metered volume 1,600 cc.).

This was confirmed by flight tests under various atmospheric conditions, in which the fuel was passed to a calibrated tank.

VOLUME ERRORS (FLIGHT TESTS).

Rate of Flow. (litres/hour).	% Error. Meter I.	Meter II.	Weather.
260	.25	.25	Calm.
360	.25	.15	Calm.
480	.37	.25	Slight gusts.
600	.21	.30	Very gusty.
900	—	.25	Calm.

In practice two metering units are mounted side by side so that as one unit is gradually emptied during a test, the second one is refilling and readings can be taken in succession. This switching over can be done automatically by the float by providing a third relay below the second measuring mark.

Vapour Pressures of Petrols and Kerosenes. (Technical Data on Fuel, World Power Conference, London, 1928, pp. 151 and 156-157.) (123/14 Great Britain.)

PETROLEUM MOTOR SPIRITS.

	From Mixed Base Crude. Aviation Petrol.	Petrol No. 1.	Petrol No. 3.	Tractor Vaporising Oil.
Specific gravity D 15.5 °C./15.5 °C. ...	0.720	0.740	0.745	0.780
Correction to specific gravity per °C.	0.000855	0.000830	0.000820	0.000745
Boiling Range :				
I.B.P. °C.	35	33	35	115
50 per cent. over at °C.	84	104	112	166
F.B.P. °C....	146	184	198	196
Per cent. to 100 °C.	70	42	32	Nil

PETROLEUM MOTOR SPIRITS (*continued*).

		From Mixed Base Crude.			
		Aviation Petrol.	Petrol. No. 2.	Petrol. No. 2.	Tractor. Vaporising Oil.
Vapour pressure : Mm. of Hg. at °C.	−30	20.4	15	11	—
	−20	34	25	19	—
	−10	52	40	29	—
	0	80	62	47	—
	+10	115	90	70	—
	20	170	133	100	—
	30	240	185	145	—
	40	330	265	200	12
	50	450	360	280	19
	60	590	480	365	29
	70	780	630	490	44
Equation for vapour pressure :	$A=$	6.76	6.72	6.65	7.48
Log $p=A-B/T$ where p=mm. Hg., T=abs. temp. °C.	$B=$	1,325	1,345	1,360	2,000

FUELS OTHER THAN MOTOR SPIRITS.

		From Mixed Base Crude.					
		Power Vaporising Oil.	Kerosene.	Long-time Burning Oil.	Diesel Oil Distilled (Gas Oil).	Light Fuel Oil.	Heavy Fuel Oil.
Composition :							
Ultimate C. % ...		86.2	86.4	86.0	86.3	86.2	86.1
„ H. % ...		13.8	13.6	14.0	12.8	12.4	11.8
„ S. % ...		0.01	0.08	0.01	0.9	1.4	2.1
Specific gravity : D. 15.5 °C./15.5 °C.		0.780	0.793	0.793	0.870	0.895	0.949
Correction to specific gravity per °C. ...		0.000745	0.00072	0.00072	0.000665	0.00066	0.00065
Boiling Range :							
I.B.P. °C. ...		115	140	178	177	200	250
50 per cent. over at °C. ...		166	196	225	300	348	—
F.B.P. °C. ...		196	285	293	—	—	—
Per cent. residue at 350 °C. ...		—	—	—	16.5	49	62
Vapour Pressure : Mm. of Hg. at °C.	50	19	25	7.8	2.6	2.2	0.4
	100	130	130	47	21	16	3.6
	150	550	460	195	100	72	20
	200	1,750	1,300	605	345	235	81
	250	4,500	2,950	1,500	910	610	240
	300	9,600	5,500	3,200	2,050	1,330	590
	350	18,500	9,900	6,000	4,100	2,500	1,290
	400	32,000	16,000	10,300	7,500	4,500	2,450
	450	50,500	24,500	16,500	12,500	7,300	4,200
Equation for vapour press.	$A=$	7.48	6.81	6.92	7.05	6.70	6.90
Log $p=A-B/T$ where p=mm. Hg., T=abs. temp. °C.	$B=$	2,000	1,750	1,960	2,135	2,050	2,370

Determination of the Loss of Definition Due to Steady or Irregular Motion of an Aerial Camera by the Pictorial Point Method. (M. Nagel, Allg. Verm. Nachr., Vol. 51, No. 26, 15/9/39, pp. 582-590.) (123/15 Germany.)

Loss of definition due to regular displacement of the camera depends mainly of flight speed, scale and exposure time and can thus be calculated in a relatively simple manner. The effects of irregular motion (camera vibration) can, however, be only assessed experimentally. For this purpose the author has devised a so-called " pictorial point " method in which the apparent path of a small light source stationed on the ground is photographed, the exposure time being several times that normally employed.

A suitable light source is provided by a concave mirror which reflects the sun towards the aircraft. This mirror is best placed on an artificial background of black cloth, but in many cases the ordinary ground will suffice, provided it is of uniform colouration over a distance at least equal to the flight path during the exposure ($\sim 1/5$ sec.). If necessary the contrast can be increased by a suitable combination of photographic emulsion and light filter.

In principle, the loss of definition due to camera vibration is independent of altitude. The experiments are, however, best carried out at fairly low altitudes, of the order of 400-800 m. so that the shutter calibration obtained on the ground can be employed without necessitating corrections due to temperature effects. (The relatively long exposure times ($\sim 1/5$ sec.) required may necessitate fitting a special shutter.) If the camera is free from vibrations, the point source will trace a straight line on the plate, corresponding to the regular displacement in the direction of flight. Any camera vibration will cause high frequency ripples to appear on the light track. It should be noted, however, that only vibrations at right angles to the flight path are fully recorded. If it be assumed that the camera can vibrate equally in all directions, the length of the recorded light track may thus differ from the theoretical length by an amount up to $2a'$, where a' is the amplitude of the recorded ripples. This is of importance when calculating the amount of camera tilt required to compensate automatically for the regular motion.

Again, if a' = amplitude of recorded ripple, and f = frequency, the displacement velocity of the point image due to camera vibration can be calculated. From this the maximum exposure time for a given permissible displacement follows immediately. Thus, in a given example, $a' = .3$ mm. and frequency 19 vibrations/sec. This gives an image velocity of 11.4 mm./sec. and an exposure time of $1/114$ sec. for a permissible displacement of .1 mm.

Now automatic compensation for regular displacement is only of value if by this means longer exposures ($\sim 1/10$ at least) can be obtained. It is therefore essential that the camera vibrations be reduced so that a permissible irregular displacement of .1 mm. will not be exceeded during these longer exposures. It was found that this could be achieved by fitting the standard D.V.L. camera suspension with special hard rubber blocks supplied by Zeiss-Aerotopograph. (The details of this suspension are not given.)

As a result of these tests, the author suggests a figure of merit $G = T \times F$ for judging an aerial camera installation, where

T = exposure time for .1 mm. irregular displacement (sec.).
F = focal length in in. cm.

This figure applies to visual examination of the photograph. If the latter is to be examined with a magnification V, a correspondingly greater factor will be required.

Tests show that G depends markedly on the type of aircraft carrying the installation, but for similar installations in aircraft of the same type, the factor repeats in a satisfactory manner, provided the flight conditions are the same. (In this connection special attention should be paid to the propeller.)

The tests were carried out on W. 34, Ju. 52 and He. 70 aircraft, the latter proving the worst from the point of view of camera vibration.

In conclusion, it is pointed out that the method can also be employed for studying aircraft vibrations, by attaching the camera rigidly to the structure and examining the record of the light source situated on the ground.

LIST OF SELECTED TRANSLATIONS.

No. 69.

NOTE.—Applications for the loan of copies of translations mentioned below should be addressed to the Secretary (R.T.P.3), Ministry of Aircraft Production, and not to the Royal Aeronautical Society. Copies will be loaned as far as availability of stocks permits. Suggestions concerning new translations will be considered in relation to general interest and facilities available.

Lists of selected translations have appeared in this publication since September, 1938.

AIRCRAFT AND ACCESSORIES.

TRANSLATION NUMBER AND AUTHOR.	TITLE AND REFERENCE.
2114 ——	*Device for the Automatic Limitation of Aircraft Acceleration in the Vertical Direction.* (*German Patent* 733,589.) (Flugsport, Vol. 35, No. 9, 19/5/43, p. 26.)
2117 Richon, M. J. ...	*The Future of Stratospheric Aviation.* (L'Aerophile, November, 1938, pp. 77-84.)
2128 Focke, H.	*Autogiro and Helicopter Problems.* (Schriften der deutschen Akad. Luftfahrtforschung, No. 22.)
2131 Wolff, K.	*Calculation of Power for Operating Variable Camber Wing Flaps.* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp. 53-57.)
2132 De Azcarraga, L. ...	*Ideal Requirements for Civil Aviation.* (Rev. Aeronautica, Vol. 4 (2nd Series), No. 26, Jan., 1943, pp. 42-49.)

ENGINES AND ACCESSORIES.

2116 Graff, H.	*Measurement of the Gas Temperature in Internal Combustion Engines.* (Z.V.D.I., Vol. 86, Nos. 29-30, 25/7/42, pp. 461-466.)
2123 Schroder, W. ...	*Photothermotic Investigation of Diesel Combustion.* (M.T.Z., Vol. 1, No. 6, 1939, pp. 180-190, and Vol. 2, No. 1, 1940, pp. 7-15.)
2129 Huttemann, E. ...	*Auxiliary Engines for High Performance Gliders.* (Der deutsche Sportflieger, Vol. 9, No. 8, Aug., 1942, p. 175.)

MATERIALS AND ELASTICITY.

2113 Kummer, B. ...	*The Stressing of Rings.* (Schweizer Archiv., Vol. 3, No. 2, Feb., 1937, pp. 48-50.)
2133 Weigand, A. ...	*Stress Increases in Hollow Thin-Walled Sections Under Torsion.* (Luftwissen, Vol. 10, No. 2, Feb., 1943, pp. 49-50.)

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
2115	Goldowski	*Application of pH Indicators in the Colorimetric Investigation of Corrosion.* (Kerr u. Metallschutz, Vol. 13, Nos. 4-5, April-May, 1937, pp. 128-131.)
2118	Vosskuhler, H. ...	*The Behaviour of Certain Aluminium Alloys Towards Acid and Alkaline Solutions.* (Aluminium, Vol. 20, No. 7, July, 1938, pp. 460-464.)
2136	Zurbrugg	*Rapid Method of Determining Grain-Boundary Corrosion in Alloys of the Al.-Cu.-Mg. Type.* (Aluminium, Vol. 20, No. 11, Nov., 1938, pp. 826-827.)
2137	Bosshard, M. Hug, H. ...	*The Causes of Grain-Boundary Corrosion in Age-Hardened Al.-Cu.-Mg. Alloy.* (Aluminium, Vol. 20, No. 6, June, 1938, pp. 389-394.)
2142	Kuhnel, R.	*Evaluation of Metallic Bearing Materials in the Light of Recent Literature.* (Z.V.D.I., Vol. 85, No. 9, 1/3/41, pp. 201-206.) (Translated by Rolls-Royce, Ltd.)
2143	Bertrand, G. Benist, S. ...	*Preparation and Properties of Procellose. A New Sugar Obtained from Cellulose.* (Mem. Soc. Chim. France, Series IV, Vol. 33, 1923, pp. 1451-1459.)

WIRELESS AND ELECTRICITY.

2124	——	*Photo-Electric Ice Warning Device.* (German Patent No. 731,905.) (Flugsport, Vol. 35, No. 10, 16/6/43, p. 36.)
2134	Argus Motors ...	*Device for the Automatic Control of Pilotless Aircraft, with Special Application to Models.* (German Patent No 728,025.) (Flugsport, Vol. 35, No. 6, 17/3/44, p. 3.)
2138	Gross Kopf, J. Vogt, K. ...	*Measurement of Ground Conductivity.* (T.F.T., Vol. 31, No. 1, 1942, pp. 22-23.)
2140	Kolloth, R.	*Secondary Electronic Emission of Solids.* (Phys. Zeit., Vol. 38, No. 7, April, 1937, pp. 202-224.)

MISCELLANEOUS.

2126	Domagk, G. ...	*The New Therapy of Bacterial Infection.* (Forschungen u. Fortschritte, Vol. 19, Nos. 17-18, June, 1943, pp. 180-181.)
2141	Heinhold, J. ...	*Interpolation in Tables having Unequal Steps.* (Z.A.M.M., Vol. 22, No. 4, Aug., 1942, pp. 235-238.)

TITLES AND REFERENCES OF ARTICLES AND PAPERS SELECTED FROM PUBLICATIONS REVIEWED IN R.T.P.3.

Requests for further information or translations should be addressed to R.T.P.3, Ministry of Aircraft Production, giving item and reference numbers.

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THEORY AND PRACTICE OF WARFARE.

General Strategy and Tactics.

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1	20118	U.S.A. ...	*Curtiss C-76 Transport "Caravan" Abandoned.* (Inter. Avia., No. 893, 8/11/43, p. 14.)
2	20125	G.B.	*Lessons from Airborne Operations.* (Inter. Avia., No. 893, 8/11/43, p. 22.)
3	20168	Switzerland ...	*Bomber Command Losses During* 1943. (Inter. Avia., No. 898-899, 11/12/43, p. 26.)
4	20294	G.B.	*Ploesti Oil Area Now a German Fortress.* (Petroleum Times, Vol. 48, No. 1,214, 5/2/44, pp. 77-78.)
5	20316	Spain ...	*Aviation Co-operation with the Land Forces (Capital Ships or Aircraft Carriers?).* (Transcript from article in Flight, 25/6/42.) (M. Mezino, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 243-248.)
6	20318	Spain ...	*Roumanian Aviation in the Anti-Communist War.* (Anon., Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 261-264.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
7	20327	Spain ...	*Torpedo Aircraft Attack (Conclusion).* (G. C. Carre, Revista de Aeronautica, Vol. 77, No. 2, Dec., 1942, pp. 405-409.)
8	20330	Spain ...	*Torpedo Aircraft Attack.* (G. C. Carre, Revista de Aeronautica, Vol. 76, No. 24, Nov., 1942, pp. 325-332.)
9	20331	Spain ...	*Air Bombing.* (A. S. Dargent, Revista de Aeronautica, Vol. 76, No. 24, Nov., 1942, pp. 367-369.)
10	20335	Spain ...	*Questions of Air Law in War Time.* (L. T. Salinas, Revista de Aeronautica, Vol. 71, No. 19, June, 1942, pp. 407-409.)
11	20452	G.B.	*The Pattern of Aerial Combat.* (Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 46-49.)
12	20485	U.S.A. ...	*Winning Battles by Bombing.* (N. F. Silsbee, Mechanical Engineering, Vol. 66, No. 2, Feb., 1944, pp. 101-104.)
13	20538	G.B.	*Air Force Targets—No. 35, Steyr Werke, Austria.* (Engineer, Vol. 177, No. 4,599, 3/3/44, pp. 167-168.)
14	20879	G.B.	*White Plumage of Sea-Birds (Principles of Camouflage.* (K. J. W. Clark, Nature, Vol. 153, No. 3,879, 4/3/44, p. 288.)
15	20980	U.S.A. ...	*Can Air Power Alone Bring About Decisive Victory.* (U.S. Air Services, Vol. 28, No. 10, October, 1943, pp. 13-14, 43.)
			Training and Organisation.
16	20010	U.S.A. ...	*The Organisation of the U.S. Army Air Forces (IV).* (Inter. Avia., Nos. 896-897, 30/11/43, pp. 1-9.)
17	20076	U.S.A. ...	*Notes on Classification, Selection and Training of Pilots.* (B. Kaufman, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 383-385.)
18	20110	U.S.A. ...	*G.B.-U.S.A. Naval Air Co-operation.* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 21-22.)
19	20152	U.S.A. ...	*Organisation of the U.S. Army Air Forces (IV-2).* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 1-12.)
20	20175	Switzerland ...	*Naval Airship Training in the U.S.A.* (Inter. Avia., Nos. 898-899, 11/12/43, p. 24..)
21	20200	U.S.A. ...	*Building the A.A.F. Part V—Training of Air Gunners.* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 221-225, 304-308.)
22	20236	G.B.	*The Air Training Corps.* (Duke of Hamilton, Aeroplane, Vol. 66, No. 1,709, 25/2/44, p. 210.)
23	20393	G.B.	*Map Reading and Navigation (Book Review).* (R. M. Field and H. T. Stetson, Nature, Vol. 153, No. 3,876, 12/2/44, p. 180.)
24	20397	U.S.A. ...	*Communications Lifeline of the Air Transport Command.* (R. L. Sigerson, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 128, 264.)
25	20455	G.B.	*Aerobatic Ground Trainer (Patent).* (Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 58.)

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26	20489	U.S.A. ...	*Conservation in the Ordnance Dept. of the Army Service Forces.* (T. Lewis, Mechanical Engineering, Vol. 56, No. 2, February, 1944, pp. 119-120.)
27	20666	G.B.	*Synthetic Black-Out (Novel and Simple Aid for Instrument-Flying Training).* (Flight, Vol. 45, No. 1,836, 2/3/44, p. 226.)
28	20674	U.S.A. ...	*Organisation of the U.S. Army Air Force (IV-3).* (Inter. Avia., No. 900, 24/12/143, pp. 1-8.)
29	20795	U.S.A. ...	*The Command and Employment of Air Power.* (H. A. De Weerd, U.S. Air Services, Vol. 29, No. 1, January, 1944, pp. 11-13.)
30	20958	G.B.	*Coastal Command Station.* (Flight, Vol. 45, No. 1,838, 16/3/44, pp. 278-283.)
31	20962	U.S.A. ...	*Growth of U.S. Air Power (Review).* (Flight, Vol. 45, No. 1,838, 16/3/44, pp. 289-291.)
32	21004	G.B.	*Atlantic Conquest (Atlantic Ferry Service).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, pp. 299-302.)
33	21069	Canada ...	*Organisation and Planning an R.A.F. Raid.* (A. C. H. Purthrey, Canadian Aviation, Vol. 17, No. 1, January, 1944, pp. 44-47, 68-70.)
34	21079	U.S.A. ...	*Three Years of the North Atlantic Ferry.* (Aero Digest, Vol. 43, No. 4, October, 1943, pp. 120-121, 240.)
			General Design of Military Aircraft.
35	20013	U.S.A. ...	*Long Range Fuel Tanks for Bombers.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 12.)
36	20196	U.S.A. ...	*Design Details of Douglas A-20 (Turbo Supercharger Installation, Inner Wing Panel Construction).* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 199-201.)
37	20218	G.B.	*The World's Best Aircraft (Comments on Peter Masefield's Article).* (R. L. Lickley and F. H. M. Lloyd, Flight, Vol. 45, No. 1,835, 24/2/44, pp. 202-203.)
38	20405	U.S.A. ...	*New Fuses Protect Aircraft Hydraulic Systems (Seals Off any Portion of Hydraulic System Affected by Bullet Penetration, etc.).* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 185-188, 282.)
39	20406	U.S.A. ...	*Reduction of the Progressive Thinning of Hydraulic Tube Flares (Weight Reduction by Designing for Higher Pressure Systems).* (R. J. McCabe, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 190-192, 282-284.)
40	20449	Germany ...	*A Survey of Nazi Fighter Development.* (H. J. A. Wilson, Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 28-35.)
41	20667	G.B.	*The New Exactor Hydraulic Remote Control.* (Flight, Vol. 45, No. 1,836, 2/3/44, p. 226.)
42	20670	G.B.	*Markings of Axis Aircraft.* (Flight, Vol. 45, No. 1,836, 2/3/44, p. 230.)

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43	20672	G.B.	*Sound-Proofing, Seating and Interior Decoration of Aircraft.* (Flight, Vol. 45, No. 1,836, 2/3/44, pp. 231-234.)
44	20673	G.B.	*Control Simplification and Standardisation.* (Flight, Vol. 45, No. 1,836, 2/3/44, pp. 237-238.)
45	20748	U.S.A. ...	*Sound Proofing of Military Aircraft.* (A. A. Arnhym, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-14.)
46	20768	U.S.A. ...	*Truman Report on American Aircraft.* (Inter. Avia., Nos. 886-887, 27/9/43, pp. 15-18.)
47	21005	G.B.	*Messier Undercarriage for Handley Page Halifax III.* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 303.)
48	21095	U.S.A. ...	*New Laminated Phenolic Plastic Flooring Designed for Martin "Mars."* (Aero Digest, Vol. 43, No. 4, October, 1943, p. 210.)

Testing and Navigation.

49	20210	U.S.A. ...	*Biggest A.A.F. Motorless Aircraft Tested (Photos).* (Aviation News, Dec., 1943, p. 11.)
50	20319	Spain ...	*Astro Navigation and the War.* (Gen. Aymat, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1943, pp. 267-269.)
51	21081	U.S.A. ...	*Mathematics of Direction Finding Navigation.* (T. Collins, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 125, 235.)

Equipment of Military Aircraft.

52	18623	U.S.A. ...	*Improvised Depression Position Finder.* (D. J. Caldwell, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 52-53.)
53	20137	Canada ...	*Radium Luminous Compounds for Aircraft Instruments.* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 114-116.)
54	20170	G.B.	*Rotol A.G.P. Auxiliary Generating Plant (Photograph).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 1.)
55	20194	U.S.A. ...	*Flexible Cable Control Eliminates Backlash (Teleflex Cable).* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 189-191, 303.)
56	20195	U.S.A. ...	*Autopilot Gives Instant Control (Minneapolis-Honeywell Autopilot Control).* (E. E. Thorp, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 192-193.)
57	20490	U.S.A. ...	*Inflatable Life-Saving Rafts in the War Effort.* (J. C. Kreyer, Mechanical Engineering, Vol. 66, No. 2, February, 1944, pp. 121-129.)
58	20586	Germany ...	*Parachute Opening Shock Dampers.* (736,638.) (Schroeder, Flugsport, Vol. 35, No. 14, 20/10/43, p. 64.)

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59	20664	G.B.	*Electricity in Aircraft.* (C. G. A. Woodford, Flight, Vol. 45, No. 1,836, 2/3/44, p. 223.)
60	20678	Switzerland ...	*Equipment of First Line Aircraft.* (Inter. Avia., No. 900, 24/12/43, pp. 14-15.)
61	20680	U.S.A. ...	*Separate Air-Driven Booster Fuel Pump for Jettisonable Fuel Tanks.* (Inter. Avia., No. 900, 24/12/43, p. 16 (I).)
62	20705	U.S.A. ...	*Head Armour for Airmen* (1½ *lb.*). (Inter. Avia., Nos. 901-902, 10/1/44, pp. 26-27.)
63	20801	U.S.A. ...	*New Flak Helmets for Air Crews.* (U.S. Air Services, Vol. 29, No. 1, January, 1944, p. 48.)
64	21009	G.B.	*Automatic Weight and Balance Indicator Installed in Martin "Mars" (Hydrobal).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 296.)
			Armament and Explosives.
65	20022	U.S.A. ...	*Boeing B-17 Chin Turret (Photograph).* (Inter. Avia., Nos. 896-897, 30/11/43, p. 11.)
66	20098	U.S.A. ...	*O.W.I. Report on American Aerial Rearmament (Bomb Load of Fortress 20,000 lb.).* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 17-18.)
67	20108	U.S.A. ...	*"Consolidated" Nose Armament.* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 1, 16.)
68	20119	U.S.A. ...	*Boeing B.17F Nose Guns.* (Inter. Avia., No. 893, 8/11/43, pp. 14-15 (I).)
69	20124	U.S.A. ...	*Sperry Automatic Gun Sight for Power-Driven Gun Turrets.* (Inter. Avia., No. 892, 8/11/43, p. 20.)
70	20171	Switzerland ...	*American Bomb Type.* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 21-22.)
71	20174	Switzerland ...	*Douglas Havoc Fuselage Gun (Photo).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 1.)
72	20332	Spain ...	*Auto-Propulsive Bombs.* (Anon., Revista de Aeronautica, Vol. 76, No. 24, Nov., 1942, pp. 370-371.)
73	20414	U.S.A. ...	*B-25 Mounts 75 mm. Cannon.* (Aero Digest, Vol. 43, No. 6, December, 1943, p. 238.)
74	20463	G.B.	*Gunnery Notes.* (J. Russell, Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 41.)
75	20583	Germany ...	*Bomb Release Gears.* (734,009, 736,269.) (Ritscher, Flugsport, Vol. 35, No. 14, 20/10/43, pp. 63-69.)
76	20665	G.B.	*Mosquito Development (500 lb. Bomb Under Each Wing in Addition to 1,000 lb. Bomb Load within Fuselage).* (Flight, Vol. 45, No. 1,836, 2/3/44, p. 223.)
77	20676	U.S.A. ...	*Consolidated B-24H "Liberator" (Armament).* (Inter. Avia., No. 900, 24/12/43, pp. 13-14.)
78	20776	Germany ...	*Focke Wulf F.W. 189 Rear Gun Installation (Photo).* (Inter. Avia., Nos. 886-887, 27/9/43, p. 1.)
79	20777	G.B.	*Magnetic Mines Exploding Device on Wellington (Photo).* (Inter. Avia., Nos. 886-887, 27/9/43, p. 1.)

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80	20848	U.S.S.R. ...	*The Facing of Detonation in Elongated Charges of Explosives with Intensified Initiation.* (A. F. Belyaev, Reports of the Academy of Sciences, Vol. 38 (New Series), Nos. 5-6, 1943, pp. 198-199.)
81	20857	U.S.S.R. ...	*Effect of Admixtures on the Detonation of a Mixture of Methane and Air.* (M. A. Rivin, Reports of the Academy of Sciences, Vol. 30 (New Series), No. 6, 1941, pp. 500-501.)
82	20872	G.B.	*Rocket - Wing - Bomb and Rocket - Torpedo.* (Z. Leliwa-Kraywoblocki, Journal of the Royal Aeronautical Society, Vol. 48, No. 399, March, 1944, pp. 58-67.)
83	21001	G.B.	12,000 *lb. Bomb (Photos).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 294.)
84	21077	U.S.A. ...	*Precision Bombing and the Electronically Controlled Autopilot.* (Aero Digest, Vol. 43, No. 4, Oct., 1943, pp. 116-117, 232.)
85	21080	U.S.A. ...	*Our Aircraft the Most Formidable in the Skies (Improvements in Armament, etc.).* (Aero Digest, Vol. 43, No. 4, October, 1943, pp. 122-124.)
			Military Types of Aircraft (G.B.).
86	20017	G.B.	*Handley Page Halifax II.* (Inter. Avia., Nos. 896-897, 30/11/43, pp. 11, 15.)
87	20018	G.B.	*D.H. 98 Mosquito in 15 Versions.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 16.)
88	20019	G.B.	*Fairey "Barracuda" Torpedo and Dive-Bomber.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 16.)
89	20107	Australia ...	*Australian Built "Boomerang" Fighter.* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 1, 16.)
90	20154	Canada ...	*Canadian Fairey Battle (Photo).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 1.)
91	20221	G.B.	*Percival Proctor IV.* (Flight, Vol. 45, No. 1,835, 24/2/44, p. 210.)
92	20402	G.B.	*Detail Sketches of the Bristol Beaufighter.* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 172-173.)
93	20446	G.B.	*The Hawker Hurricane IID (Recognition Details).* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, pp. 248-249.)
94	20684	G.B.	*Saunders-Roe Flying Boat Projects (20,000 to 200,000 lb. Gross Weight).* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 1, 13-19.)
95	20686	Canada ...	*Lancaster II (Canadian Built).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 14.)
96	20918	G.B.	*The Armstrong Whitworth Albemarle (Recognition Details).* (Aeroplane, Vol. 66, No. 1,711, 10/3/44, p. 275.)
97	21010	G.B.	*Avro Lancaster III (Photo).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 294.)

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			Military Types of Aircraft (U.S.A.).
98	20085	U.S.A.	... *The Cyclone-Engined Brewster Bermuda Dive-Bomber (Photo).* (Aircraft Engineering, Vol. 16, No. 180, Feb., 1944, pp. 46-47.)
99	20116	U.S.A.	... *Douglas P-70 (Night Fighter Version of the Havoc).* (Inter. Avia., No. 893, 8/11/43, pp. 1, 12.)
100	20117	U.S.A.	... *Curtiss-Wright C-46 Transport "Commando."* (Inter. Avia., No. 893, 8/11/43, pp. 13-14.)
101	20122	U.S.A.	... *Sikorsky V.S.-44-A Flying Boat for the Naval Air Transport Service.* (Inter. Avia., No. 893, 8/11/43, p. 15.)
102	20158	U.S.A.	... *Gruman F6F Hellcat Carrier Fighter.* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 1, 17-18.)
103	20159	U.S.A.	... *Curtiss P-40N (Obsolescent).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 18.)
104	20202	U.S.A.	... *Bell TP-39 Airacobra for Transition Training.* (Aviation, Vol. 42, No. 12, Dec., 1943, p. 230.)
105	20677	U.S.A.	... *North American B-25 "Mitchell" (Destroyer Version).* (Inter. Avia., No. 900, 24/12/43, p. 14.)
106	20683	U.S.A.	... *Taylorcraft Light Reconnaissance "Auster" (Photograph).* (Inter. Avia., No. 900, 24/12/43, p. 1.)
107	20692	U.S.A.	... *Boeing B-17E, F and G (Fortress).* (Inter. Avia., Nos.901-902, 10/1/44, pp. 1, 18.)
108	20693	U.S.A.	... *Martin PB2M-1 Mars.* (Inter. Avia., Nos. 901-902, 10/1/44.)
109	20694	U.S.A.	... *Douglas C-47 "Skytrain," Seaplane Version.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 19.)
110	20695	U.S.A.	... *Beech AT-10 "Wichita" Bomber Trainer.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 19.)
111	20706	U.S.A.	... *Boeing B-25 "Mitchell" (Special Version for Aerial Mapping) (Photograph).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 1.)
112	20765	U.S.A.	... *Piper P.T. Trainer.* (Inter. Avia., Nos. 886-887, 27/9/43, pp. 19-20.)
113	20770	U.S.A.	... *Consolidated Liberator.* (Inter. Avia., Nos. 886-887, 27/9/43, p. 18.)
114	20771	U.S.A.	... *North American Mustang II (P-51B).* (Inter. Avia., Nos. 886-887, 27/9/43, p. 19.)
115	20772	U.S.A.	... *Martin B-26 Marauder.* (Inter. Avia., Nos. 886-887, 27/9/43, pp. 1, 19.)
116	20809	U.S.A.	... *More Details of the Lockheed P38 Fighter.* (Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, pp. 30-32.)
117	20982	U.S.A.	... *Vultee "Vengeance" Dive Bomber.* (E. H. Forbes, U.S. Air Services, Vol. 28, No. 10, October, 1943, pp. 34-35.)
118	21096	U.S.A.	... *Martin Mariner (Detail Drawings).* (Aero Digest, Vol. 43, No. 4, October, 1943, pp. 212-213.)
			Military Types of Aircraft (U.S.S.R.).
119	20099	U.S.S.R.	... *PE-2 Light Bomber (with Sketch).* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 1, 9-12.)
120	20219	U.S.S.R.	... *Aircraft in Flying Attitudes (Yak 1, Wig 3, Lagg 3, Stormovik).* (Flight, Vol. 45, No. 1,835, 24/2/44, pp. 204-205.)

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121	20704	U.S.S.R. ...	*Yak 9 Single-Seater Fighter.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 26.)
122	20916	U.S.S.R. ...	*Russian DB-3F Bomber (Photo).* (Aeroplane, Vol. 66, No. 1,711, 10/3/44, p. 264.)
123	21003	U.S.S.R. ...	*Aeroplanes of the Red Air Forces—VII (Silhouettes).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 298.)

Military Types of Aircraft (Germany).

124	20023	Germany ...	*Messerschmitt Me. 323 Large Transport.* (Inter. Avia., Nos. 896-897, 30/11/43, pp. 1, 19.)
125	20112	Germany ...	*Me. 410 Long Range Fighter.* (Inter. Avia., No. 893, 8/11/43, p. 10.)
126	20113	Germany ...	*Junkers 87 D-2 Dive Bomber.* (Inter. Avia., No. 893, 8/11/43, p. 11.)
127	20153	Germany ...	*Junkers Ju. 188 Medium Bomber.* (Inter. Avia., Nos. 898-899, 11/12/43, p. 15.)
128	20245	Germany ...	*Arado 196A Seaplane (Photo).* (Aeroplane, Vol. 66, No. 1,709, 25/2/44, p. 207.)
129	20441	Germany ...	*Wreckage of Dornier Do. 21 M1 (Photo).* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, p. 239.)
130	20447	Germany ...	*The Messerschmitt Me. 109G (Recognition Details).* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, pp. 248-249.)
131	20641	Germany ...	*Giant Aircraft of German Design (Ju. 905 and its Predecessors).* (Luftwelt, Vol. 10, No. 23, 1/12/43, pp. 462-464.)
132	20675	Germany ...	*Bucker B-182 "Kornett" Trainer.* (Inter. Avia., No. 900, 24/12/43, pp. 1, 12-13.)
133	20685	Germany ...	*Focke Wulf "Moskito" (Wood Construction).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 14.)
134	20687	Germany ...	*Siebel Si. 204 Liaison Plane Built in France.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 22.)
135	20764	Germany ...	*British Report on German and Italian Aircraft Captured in Tunisia (Me. 109G, F.W. 190, Ju. 87D, Me. 110G, Me. 210 A-1, Ju. 88, Hs. 129, Ju. 908, Me. 323, SM. 84).* (Inter. Avia., Nos. 886-887, 27/9/43, pp. 1, 12-15.)
136	20919	Germany ...	*The Dornier 217E (Recognition Details).* (Aeroplane, Vol. 66, No. 1,711, 10/3/44, p. 275.)
137	20959	Germany ...	*The Junkers Ju. 86P High Altitude Reconnaissance Bomber (Photo).* (Flight, Vol. 45, No. 1,838, 16/3/44, p. 282.)
138	21011	Germany ...	*News of New German Aircraft Types (Me. 410, He. 219, Arado 240).* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, pp. 289-290.)

Military Types of Aircraft (Japan).

139	20027	Japan ...	*Shoki Interceptor Fighter.* (Inter. Avia., Nos. 896-897, 30/11/43, pp. 11, 20.)
140	20115	Japan ...	*New Japanese Types (S-01 Fighter, OB-01 Bomber, RT-00 Carrier Catapult).* (Inter. Avia., No. 893, 8/11/43, pp. 11-12.)

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141	20669	Japan ...	*The Donryu—New Twin-Engined Japanese Bomber (Photo).* (Flight, Vol. 45, No. 1,836, 2/3/44, p. 230.)
142	20766	Japan ...	*New Japanese Operational Types (Shitei Reconnaissance, Shoki Interceptor, Donryu Bomber).* (Inter. Avia., Nos. 886-887, 27/9/43, p. 15.)
			Military Types of Aircraft (Italy).
143	20024	Italy	*Macchi MC. 203 Fighter.* Inter. Avia., Nos. 896-897, 30/11/43, p. 20.)
144	20025	Italy	*Reggiane Re. 2003 Fighter.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 20.)
			Military Types of Aircraft (Spain, France).
145	20114	Spain ...	*Two-Seater Trainer M.1.* (Inter. Avia., No. 893, 8/11/43, p. 11.)
146	20564	France ...	*Mureaux 190 C1 Single-Seater Fighter.* (Flugsport, Vol. 35, No. 14, 20/10/43, pp. 206-207.)
			Gliders and Sailplanes.
147	20166	G.B.	*U.S. Naval Transport Gliders (Bristol LRO-1 and Allied Aviation LRA-1).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 19.)
148	20399	U.S.A. ...	*What Future Has the Glider?* (H. J. Maynard, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 162-163, 271-272.)
149	20442	G.B.	*Heinkel Glider Tug.* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, p. 239.)
150	20562	G.B.	*Airspeed "Horsa" Glider.* (Flugsport, Vol. 35, No. 14, 20/10/43, pp. 204-205.)
			Fleet Air Arm.
151	20028	U.S.A. ...	*New Aircraft Carriers for the U.S. Naval Air Service.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 25.)
152	20201	U.S.A. ...	*Goodyear M-1 Blimp Begins Test Flights.* (Aviation, Vol. 42, No. 12, Dec., 1943, p. 230.)
153	20528	U.S.A. ...	*Navy Synthetic Training Devices (the Training of Mechanics).* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 56-58.)
154	20539	G.B.	*The Future of the Aircraft Carrier.* (B. J. Hurren, Engineer, Vol. 177, No. 4,599, 3/3/44, pp. 174-175.)
155	20796	U.S.A. ...	*Naval Aircraft in Combat.* (J. B. Goodman, U.S. Air Services, Vol. 29, No. 1, January, 1944, pp. 14-15.)
156	20800	U.S.A. ...	*U.S. Navy's Newest and Largest Non-Rigid Airship (M-1) (Photo).* (U.S. Air Services, Vol. 29, No. 1, January, 1944, p. 29.)
			Maintenance.
157	20156	U.S.A. ...	*Lockheed Maintenance Plants in G.B. (50 per cent. of all Aircraft Going on European Operations Require Repair on Return).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 17.)

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158	20185	U.S.A. ...	*Mobile Service Units of 8th Air Force Service Command Repair Damaged Aircraft in Britain* (M. V. Cave, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 124-127, 308.)
159	20186	U.S.A. ...	*Maintenance and Repair of Navy's Blimps.* (R. E. Huse, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 128-135, 321.)
160	20527	U.S.A. ...	*R.A.F. Salvage Methods for Damaged Aeroplanes. II—Propellers, Gun Turrets, etc.* (G. E. C. Lywood, Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 52-55.)
161	20532	U.S.A. ...	*Field Maintenance—The Mobile Instrument Shop.* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 66-67.)
162	20533	U.S.A. ...	*Winterization (Operation of Aircraft Under Winter Conditions).* (H. C. Burghduff, Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 68-69, 120-138.)
163	21082	U.S.A. ...	*Makeshift Propeller Maintenance in Africa.* (Aero Digest, Vol. 43, No. 4, October, 1943, pp. 126, 237.)
164	21084	U.S.A. ...	*Canada Keeps Them Flying (New Maintenance Plan—Concentration on One Aircraft at a Time).* (Aero Digest, Vol. 43, No. 4, October, 1943, pp. 142, 232.)

Anti-Aircraft.

165	18597	U.S.A. ...	*37 mm. Trainer for Individual Tracer Control.* (R. M. Bleier, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 24-27.)
166	18599	U.S.A. ...	*Assignment of Targets in Quick Night Actions, etc. (Need for Proper Distribution of Fire).* Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, p. 32.)
167	18604	U.S.A. ...	*Improvised Sea Coast Devices (Set Forward Scale Chart, Tide Chart, Muzzle Velocity Chart).* (W. Watts, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 51-54.)
168	18605	U.S.A. ...	*Exterior Ballistics and Differential Effects.* (K. C. Smith, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 56-57.)
169	18606	U.S.A. ...	*The Relationship of the Eye to A.A. Gunnery.* (E. E. Grossman, Coast Artillery Journal, Vol. 86, No. 3, May-June, 1943, pp. 58-59.)
170	18612	U.S.A. ...	*The .50 Browning Machine Gun as a Sub-Caliber for the 40 mm. Automatic Gun.* (Coast Artillery Journal, Vol. 86, No. 4, No. 4, July-August, 1943, pp. 20-23.)
171	18614	U.S.A. ...	*Barrage Balloon Operations Board.* (J. S. Webb, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 30-31.)
172	18613	U.S.A. ...	*Stereoscopic Viewer.* (M. Morgan, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 28-29.)

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173	18615	U.S.A. ...	*Training Aids (Work of the Coast Artillery Replacement Training Centre).* (S. Horowitz, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 32-33.)
174	18617	U.S.A. ...	*Individual Tracer Control.* (G. W. Race, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 36-41.)
175	18619	U.S.A. ...	*Practice Spotting Trainer.* (J. S. Piram, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 44-45.)
176	18620	U.S.A. ...	*Solving Trial Shot Problems.* (J. Parmakian, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 46-48.)
177	18622	U.S.A. ...	*Shadowgraph for Recognition Training.* (J. F. Carson, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 50-51.)
178	18624	U.S.A. ...	*A Method of Emergency Range Finding.* (G. E. Ellard, Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, pp. 54-55.)
179	18626	U.S.A. ...	*High Speed Targets for Training.* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, p. 59.)
180	18627	U.S.A. ...	*Model Plane Targets.* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, p. 64.)
181	20438	U.S.A. ...	*New Mg. Anti-Aircraft Gun Director.* (Mechanical Engineering, Vol. 66, No. 2, February, 1944, p. 139.)
182	20615	U.S.A. ...	*Structural Protection Against Incendiary Bombs.* (Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, pp. 381-382.)
183	20754	Germany ...	*Distant Control for A.A. Artillery.* (H. Hopf, Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, pp. 785-790.)
184	21039	U.S.A. ...	*A.A. Artillery with the Infantry Division.* (R. W. Moore, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, pp. 23-25.)
185	21040	U.S.A. ...	*Controlled Spotting—the Frazer Trainer.* (H. W. Wandersee and R. F. Wood, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, pp. 28-31.)
186	21041	U.S.A. ...	*A.A. Guns and the Fire Direction Centre.* (B. D. Gill, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, p. 32.)
187	21042	U.S.A. ...	*Anti-Motor Torpedo Boat Target.* (C. L. Beaudry, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, p. 33.)
188	21043	U.S.A. ...	*German No. 5 mm. A.A. Gun (Photo).* (Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, p. 34.)
189	21044	U.S.A. ...	*Combat Conditioning.* (V. Usera, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, pp. 36-38.)
190	21045	U.S.A. ...	*Spotting by Sensing for Rapid Fire Batteries.* (F. G. Tandy, Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, pp. 39-40.)

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191	21046	U.S.A. ...	*Determination and Use of Certain Statistical Averages in Sea Coast Artillery Fire Control.* (Coast Artillery Journal, Vol. 86, No. 5, Sept.-Oct., 1943, pp. 41-42.)
			A.R.P.
192	18621	U.S.A. ...	*Individual Protective Cover Against Effects of Vesicant Gases.* (Coast Artillery Journal, Vol. 86, No. 4, July-August, 1943, p. 49,)
193	19499	G.B.	*The Removal of Mustard Gas from Fats.* (H. C. Lockwood, Chemistry and Industry, Vol. —, No. 6, 5/2/44, pp. 50-51.)
194	19812	U.S.A. ...	*Activated Charcoal Produced from Sawdust for Use in Gas Mask Canisters.* (Army Ordnance, Vol. 26, No. 142, Jan.-Feb., 1944, p. 128.)

AERODYNAMICS AND HYDRODYNAMICS.

General Aerodynamics.

195	20035	U.S.A. ...	*Aspect Ratio Corrections.* (K. D. Wood, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 270-272.)
196	20038	U.S.A. ...	*Characteristics of Airfoils in a Cylindric Axial-Flow Grid.* (J. R. Weske and F. E. Marble, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 289-294.)
197	20041	U.S.A. ...	*Contraction Cone for a Wind Tunnel.* (B. Szczeniowski, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 311-312.)
198	20042	U.S.A. ...	*A Multiple Recording Manometer (for Recording the Pressures Encountered in Wind Tunnel Testing.* (P. J. Campbell, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 313-317.)
199	20066	U.S.S.R. ...	*On Atmospheric Turbulence (Abstract).* (A. M. Obukhov, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, pp. 228-229.)
200	20067	U.S.S.R. ...	*On Shock Waves (Abstract).* (L. D. Landau, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, pp. 229-230.)
201	20128	Germany ...	*The Aerodynamics of Model Aircraft in Free Flight.* (F. W. Schmitz, Abstract, Book published Volckmann Nachf, 1942.)
202	20233	U.S.A. ...	*An Experimental Investigation of the Flow of Air in a Flat Broadening Channel.* (Report No. 137 of the Central Aero-Hydrodynamical Institute, Moscow, 1926.) (A. N. Vedernikoff, N.A.C.A. Tech. Memo. No. 1,059, Jan., 1944.)
203	20388	G.B.	*Experimental Fluid Dynamics Applied to Engineering Practice.* (G. A. Hankins, Engineering, Vol. —, No. ——, 25/2/44, pp. 158-160.)
204	20549	G.B.	*Experimental Fluid Dynamics Applied to Engineering Practice—II.* (G. A. Hankins, Engineering, Vol. 156, No. 4,077, 3/3/44, pp. 177-180, 171-172.)

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205	20619	U.S.A. ...	*Variable Speed Drive for U.S. Army Air Corps Wind Tunnel at Wright Field (Abstract).* (A. D. Dickey and others, Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, p. 482.)
206	20750	U.S.A. ...	*Some Two-Dimensional Adiabatic Compressible Flow Patterns.* (H. Kraft and C. G. Dibble, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-26.)
207	20847	U.S.S.R. ...	*A New Method for Calculating the Boundary Layer and Determining the Separation Point.* (L. E. Kalikhman, Reports of the Academy of Sciences, Vol. 38 (New Series), Nos. 5-6, 1943, pp. 180-185.)
208	20852	U.S.S.R. ...	*The Solution of an Equation in the Boundary Layer Theory by the Method of Finite Differences.* (N. S. Piskunov, Reports of the Academy of Sciences, Vol. 37 (New Series), Nos. 5-6, 1942, pp. 157-159.)
209	20853	U.S.S.R. ...	*On the Problem of Flow Separation in a Viscous Fluid.* (N. S. Piskunov, Reports of the Academy of Sciences, Vol. 37 (New Series), No. 2, 1942, pp. 43-45.)
210	20854	U.S.S.R. ...	*An Approximate Method of Calculating the Laminar Boundary Layer.* (N. E. Kochin and L. G. Loytzansky, Reports of the Academy of Sciences, Vol. 36 (New Series), No. 9, 1942, pp. 262-266.)
211	20855	U.S.S.R. ...	*Laminar Boundary Layer on a Body of Revolution.* (L. G. Loytzansky, Reports of the Academy of Sciences, Vol. 36 (New Series), No. 6, 1942, pp. 166-168.)
212	20858	U.S.S.R. ...	*The Local Structure of Turbulence in Incompressible Viscous Fluid for Very Large Reynolds Numbers.* (A. Kolmogoroff, Reports of the Academy of Sciences, Vol. 30 (New Series), No. 4, 1941, pp. 301-305.)
213	20932	G.B.	*Use of Radon (Radio Active Gas) to Trace the Flow Pattern of Gases in Furnaces.* (R. Mayereas and M. W. Thring, Nature, Vol. 152, No. 3,868, 18/12/43, pp. 723-724.)

Hydrodynamics and Hydrostatics.

214	20065	U.S.S.R. ...	*Equations of Turbulent Flow of an Incompressible Viscous Liquid (Abstract).* (A. N. Kolmogorov, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, pp. 227-228.)
215	20232	U.S.A. ...	*Profile Measurements During Cavitation.* (Reprint of Paper Presented at Congress on Hydromechanical Problems of Ship Propulsion at Hamburg, May 18-19, 1932.) (O. Walchner, N.A.C.A. Tech. Memo., No. 1,060, Jan., 1944, pp. 1-9.)

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AIRCRAFT AND ACCESSORIES.

Air Cargo and Civil Aviation.

216	20111	U.S.A. ...	*Post-War Problems of the International Air Services (IV).* (Inter. Avia., No. 893, 8/11/43, pp. 1-10.)
217	20127	Switzerland ...	*Traffic Convention at Zurich (Post-War Problem of Rail, Road. Water and Air Transport.* (Inter. Avia., No. 893, 8/11/43, pp. 26-27.)
218	20141	Canada ...	*Airway Traffic Control in Canada.* (E. D. Boyd, Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 154-160, 164.)
219	20162	U.S.A. ...	*Civil Aircraft Accidents in 1942.* (Inter. Avia., Nos. 898-899, 11/12/43, p. 30.)
220	20241	G.B.	*Air Transport as a Career.* (Aeroplane, Vol. 66, No. 1,709, 25/2/44, pp. 218-219.)
221	20242	G.B.	*The Future of Air Transport in Europe (II).* (G. Perier, Aeroplane, Vol. 66, No. 1,709, 25/2/44, p. 220.)
222	20248	U.S.A. ...	*Aeroplanes for Peace (Future of Air Transport, Glider Pick-up, etc.).* (G. Loening, Atlantic Monthly, Vol. 172, No. 5, Nov., 1943, pp. 41-45.)
223	20270	U.S.A. ...	*Requirements of Local Air Transport Service.* (Edward Warner, Paper Presented at the Air Transport Meeting of the Institute of Aeronautical Sciences, 26/10/43, pp. 1-42.)
224	20365	U.S.A. ...	*Post-War Cargo Handling (Review of Handling Equipment and Practices).* (G. Herrick, Air Transport, Vol. 1, No. 2, Oct.., 1943, pp. 22-27.)
225	20366	U.S.A. ...	*Civil Air Regulations for Transport Category Aircraft.* (W. C. Mentzer, Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 28-31.)
226	20370	U.S.A. ...	*Post-War Airways. II—Use of Ultra High Frequencies in Post-War Aviation.* (A. Scott, Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 53-55.)
227	20444	G.B.	*Australia's Airlines.* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, p. 241.)
228	20445	G.B.	*The Future Importance of Air Tramp Traffic.* (T. Olsen, Aeroplane, Vol. 66, No. 1,710, 3/3/44, p. 242.)
229	20453	G.B.	*World Plans for World Aviation.* (W. Southcote, Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 50-51.)
230	20668	G.B.	*Safety in the Air (Thoughts on Post-War Air Transport).* (H. R. L. Smith, Flight, Vol. 45, No. 1,836, 2/3/44, pp. 227-229.)
231	20707	Sweden ...	*Swedish North Atlantic Service Projects.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 31-33.)
232	20708	G.B.	*Air Line Developments in G.B.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 34-35.)
233	20981	U.S.A. ...	*Air Trailers—Post-War Freighters of the Skyways.* (R. Parkinson, U.S. Air Services, Vol. 28, No. 10, October, 1943, pp. 18/22.)
234	21002	G.B.	*Air Mail.* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, pp. 295-296.)

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			Civil and Experimental Aircraft.
235	19930	G.B. ...	... *An Air Freighter of the Future (Percival Aircraft Project).* (The Aeroplane, Vol. 66, No. 1,708, 18/2/44, pp. 188-191.)
236	20120	U.S.A.	... *Martin Cargo Aircraft Projects (86,000 lb. Gross).* (Inter. Avia., No. 893, 8/11/43, pp. 1, 15.)
237	20161	U.S.A.	... *Waco C-62 Cargo Transport.* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 18-19.)
238	20165	U.S.A.	... *Hughes-Kaiser Grant Flying Boat.* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 1, 19.)
239	20222	Germany	... *Siebel Si. 204 Four Engines Civil Aircraft.* (Flight, Vol. 45, No. 1,835, 24/2/44, p. 206.)
240	20404	G.B. ...	... *British Design Post-War Airliner (Miles X).* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 180-182.)
241	20561	Germany	... *Single-Seater Gotha GO. 179 Civil Aircraft.* (Flugsport, Vol. 35, No. 14, 20/10/43, pp. 202-204.)
242	20682	G.B. ...	... *Avro York Transport (Photograph).* (Inter. Avia., No. 900, 24/12/43, p. 1.)
243	20689	Germany	... *Heinkel 274 Transport Built in France.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 22.)
244	20697	France	... *Pressure Cabin Aircraft, Type 3,020.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 24.)
245	20699	France	... *Commercial Transport Planes Designed by S.N.C.A. (45 Tons).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 24.)
246	20700	France	... *Amiot Designs for Commercial Transport (70 Tons).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 25.)
247	20701	France	... *Breguet 1,011, 760, 840 and 500—Commercial Transport Designs (20-70 Tons).* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 25-26.)
248	20938	Germany	... *Fokker F-24 Civil Aircraft.* (Der Deutsche Sportflieger, Vol. 10, No. 11, Nov., 1943, p. 184.)
			General Design and Construction.
249	18535	U.S.A.	... *The Post-War Private Aeroplane.* (W. B. Hall, S.A.E. Preprints, 10-14/1/44, pp. 1-6.)
250	20036	U.S.A.	... *Effects of Yielding and Perforations on a Wing Tension Surface.* (R. K. Koegler and A. Schmitt, Journal of the Aeronautical Sciences, Vol. 10, No 8, Oct, 1943, pp. 273-284, 321.)
251	20039	U.S.A.	... *Tension Joints in Aircraft Structures (Riveted Joint Analysis: Effect of Holes on the Strength of Tension Members, etc.).* (C. H. Holleman, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 295-302, 310.)
252	20044	U.S.A.	... *The Influence of Sweep on the Spanwise Lift Distribution of Wings (Correspondence).* (A. Gail, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 320-321.)
253	20149	Canada	... *Comparison of Structural Details of Leading German Aircraft (Part II).* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 90-100.)

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254	20315	Spain ...	*Transport Aircraft (Continuation and Conclusion).* (Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 239-242.)
255	20326	Spain ...	*Steel Aircraft Girders.* (Anon, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 298-299.)
256	20339	Spain ...	*Modern Problems of Aircraft Design.* (L. De Azcárraga, Revista de Aeronautica, Vol. 74, No. 22, Sept., 1942, pp. 197-206.)
257	20340	Spain ...	*Economy in the Use of Special Steel in Aeronautical Construction.* (T. Mayano, Revista de Aeronautica, Vol. 73, No. 21, August, 1943, pp. 121-130.)
258	20396	U.S.A. ...	*Continental Aircraft Design Scholarship Awards (Models of the "Venturer" Prize-Winning Aircraft Design and "Adastra").* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 122-123, 274-278.)
259	20409	U.S.A. ...	*Cargo Plane Design Considerations.* (C. Wood, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 203-211, 280-282.)
260	20454	G.B.	*Protective Processes for Aircraft Metals (Anodic Treatment, Cadmium Plating, Zinc Plating, etc.).* (W. J. Roberts, Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 54-56.)
261	20457	G.B.	*Folding Wing Development.* (Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 59.)
262	20605	U.S.A. ...	*Aeroplane Wings of Magnesium.* (V. H. Pavlecka and J. K. Northrop, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 128-132.)
263	20729	U.S.A. ...	*Recent Progress in Stabilised Base Construction.* (A. H. D. Markwick, Reprint from Highways, Bridges and Aerodromes, Vol. —, 17/11/43, p. 4.)
264	20740	U.S.A. ...	*Iridium in Aviation.* (W. S. Murray, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-7.)
265	20742	U.S.A. ...	*New Wrought Aluminium Alloys for Aircraft and New Temper Modifications of Present Alloys.* (D. A. Lawless, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-11.)
266	20743	U.S.A. ...	*Preliminary Structural Analysis and Weight Investigation of Wings.* (F. N. Platt, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-47.)
267	20745	U.S.A. ...	*Resin Adhesives for Aircraft.* (T. D. Perry and H. Grinsfelder, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-24.)
268	20746	U.S.A. ...	*The Trend of Wood Use in Aircraft.* (R. W. Hess, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-12.)
269	20758	Germany ...	*Development of Large Aircraft in Germany.* (Z.V.D.I., Vol. 87, 11/12/43, pp. 792-793.)

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270	20785	G.B.	*Disposition of Spring Sections.* (C. R. Uden, Mechanical World, Vol. 115, No. 2,982, 25/2/44, pp. 226-227.)
271	20834	G.B.	*List of References on Integral Fuel Tanks (Jan., 1944).* (R.T.P.3 Bibliography No. 94.)
272	20935	Germany ...	*The Problems of the Engineer Pilot in the Preliminary Design and Final Test Stage of the Aircraft.* (H. Quenzler, Der Deutsche Sportflieger, Vol. 10, No. 11, Nov., 1943, p. 177.)

Windshields, Landing Gear, Fuel Tanks, Controls.

273	20002	U.S.A. ...	*Goodrich Self-Starting Tyre (Starts Spinning Before Plane Lands) (Photo).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 86.)
274	20190	U.S.A. ...	*Continental Air Lines Improves Cowl Flaps.* (Aviation, Vol. 42, No. 12, Dec., 1943, p. 147.)
275	20212	U.S.A. ...	*Synthetic Rubber Used to Seal Petrol Tanks.* (Aviation News, Dec., 1943, p. 15.)
276	20243	G.B.	*Undercarriage Development (Levered Suspension Shock Absorber).* (Aeroplane, Vol. 66, No. 1,709, 25/2/44, p. 221.)
277	20566	Germany ...	*Locknuts—Example of Principal Types.* (Flugsport, Vol. 35, No. 14, 20/10/43, pp. 207-208.)
278	20733	U.S.A. ...	*Aircraft Remote Controls and Automatic Controls.* (R. M. Mock, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-11.)
279	20739	U.S.A. ...	*Impact Resistant Windshield Construction.* (G. L. Pigman, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-18.)
280	20963	G.B.	*Making One Runway Do (the Maclaren Drift Undercarriage).* (Flight, Vol. 45, No. 1,838, 16/3/44, pp. 291-292.)

Patents (General).

281	18653	Germany ...	*Automatic Stabilisation of Air and Marine Craft by Means of Free Main and Linked Servo Rudder.* (740,217.) (E.C.A., Flugsport, Vol. 35, No. 16, 15/12/43, p. 73.)
282	18654	Germany ...	*Automatic Course Setting with Constant Rudder Efficiency Over a Wide Speed Range.* (739,611.) (Siemens, Flugsport, Vol. 35, No. 16, 15/12/43, p. 74.)
283	18655	Germany ...	*Automatic Course Setting, Restoring Force being Proportional to Pressure on Rudder.* (739,467.) (Siemens, Flugsport, Vol. 35, No. 16, 15/12/43, p. 74.)
284	18656	Germany ...	*Coupling for Disconnecting Connecting Servo Motor from Hand-Operated Controls.* (738,468.) (Askains, Flugsport, Vol. 35, No. 16, 15/12/43, p. 75.)
285	18637	Germany ...	*Chain or Belt Convertor for Changing Rotary into Translatory Motion (Control Rod Operation).* (739,162.) (Siemens, Flugsport, Vol. 35, No. 16, 15/12/43, p. 75.)

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286	18658	Germany	...	*Compensating Device for Controlling Slack Due to Thermal Expansion in Control Cables.* (740,160.) (Heinkel, Flugsport, Vol. 35, No. 16, 15/12/43, pp. 75-76.)
287	19872	Germany	...	*Suspension Inside Fuselage for Jettisonable Loads.* (739,163.) (Junkers, Flugsport, Vol. 36 No. 1, 19/1/44, p. 85.)
288	19873	Germany	...	*Adjustable Flexible Steel Strip for the Suspension of Horizontally Suspended Jettisonable Loads.* (740,161.) (Neubrandenburg, Flugsport, Vol. 36, No. 1, 19/1/44, p. 86.)
289	19875	Germany	...	*High Pressure Electric Vapour Lamp for Illuminating Landing Fields with Spectrum Adjustment to Allow for Nature of Ground.* (738,684.) (A.E.G., Flugsport, Vol. 36, No. 1, 19/1/44, p. 87.)
290	19876	Germany	...	*Smoke or Fog Generator (Signalling or Ground Wind Indicator).* (737,140.) (Svenska Gasaccumulator A.B., Flugsport, Vol. 36, No. 1, 19/1/44, p. 87.)
291	19877	Germany	...	*Distant Controlled Mechanical Wind Direction Indicator.* (732,539.) Siemens, Flugsport, Vol. 36, No. 1, 19/1/44, p. 87.)
292	19893	Germany	...	*Jettisoning Fuel Through Wing Flap.* (739,931.) (Junkers, Flugsport, Vol. 36, No. 1, 19/1/44, p. 84.)
293	19911	Germany	...	*Retractable Aircraft Searchlight.* (733,385.) (Zeirs, Flugsport, Vol. 35, No. 15, 17/11/43, p. 72.)
294	19912	Germany	...	*Smoke Generator for Ground Wind Direction Indicator.* (734,609, 734,809.) (Abreus, Flugsport, Vol. 35, No. 15, 17/11/43, p. 72.)
295	20456	G.B.	...	*Balance Machine for Determining the C.G. of a Loaded Aircraft (Patent).* (Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 58-59.)
296	20570	Germany	...	*Combined Epicyclic Reduction Gear and Auxiliary Drive Mechanism.* (735,301.) (Auto Union, Flugsport, Vol. 35, No. 14, 20/10/43, p. 60.)
297	20574	Germany	...	*Collecting Condensed Water from Wing Surface Condensers.* (736,722.) (Heinkel, Flugsport, Vol. 35, No. 14, 20/10/43, pp. 61-62.)
298	20575	Germany	...	*Combined Spinner and Cooling Cowl.* (738,081.) (V.D.M., Flugsport, Vol. 35, No. 14, 20/10/43, pp. 57-58.)
299	20576	Germany	...	*Cabin Air Heater (Exhaust Operated).* (734,304.) (Junkers, Flugsport, Vol. 35, No. 14, 20/10/43, p. 62.)
300	20579	Germany	...	*Engine Cowling Fastener.* (736,012.) (Blohm and Voss, Flugsport, Vol. 35, No. 14, 20/10/43, p. 59.)
301	20580	Germany	...	*Quick Release for Jettisoning Aircraft Power Plants.* (735,508.) (Arado, Flugsport, Vol. 35, No. 14, 20/10/43, p. 59.)
302	20581	Germany	...	*Boundary Layer Control by Suction.* (736,114.) (Junkers, Flugsport, Vol. 35, No. 14, 20/10/43, p. 62.)

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303	20582	Germany ...	*Method of Ventilating and Heating Pressure Cabins (Energy Content of Air Leaving Cabin Under Pressure Utilised to Provide Part of Compression Work of Fresh Air).* (737,644.) (D.V.L., Flugsport, Vol. 35, No. 14, 20/10/43, pp. 59-60.)
304	20964	G.B.	*Bristol Exhaust-Actuated Boundary Layer Control.* (Flight, Vol. 45, No. 1,838, 16/3/44, p. 292.)
			General Equipment.
305	20323	Spain ...	*Aircraft Fire Extinguishers.* (L. P. Pezer, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 287-291.)
306	20328	Spain ...	*Fire Extinction by Foam.* (J. Cachofund F. Arias, Revista de Aeronautica, Vol. 77, No. 25, Dec., 1942, pp. 421-424.)
307	20747	U.S.A. ...	*Development of Stall Warning Indicators.* (J. George, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-13.)
308	21060	G.B.	*Aircraft Electrical Equipment.* (Electrical Times, Vol. 105, No. 2,733, 9/3/44, pp. 276-279.)
309	21070	Canada ...	*Fire Fighting Equipment for Aircraft Fires.* (Canadian Aviation, Vol. 17, No. 1, January, 1944, pp. 56-57, 97.)
310	21072	Canada ...	*Rotol Auxiliary Generating Plant.* (Canadian Aviation, Vol. 17, No. 1, January, 1944, pp. 80-82.)
311	21073	Canada ...	*The Avia Electric Aircraft Heater.* (Canadian Aviation, Vol. 17, No. 1, January, 1944, p. 88.)
			Seaplanes and Flying Boats.
312	20214	G.B.	*The Flying Boat.* (G. A. H. Pollitt, Flight, Vol. 45, No. 1,835, 24/2/44, pp. 196-198.)
313	20235	U.S.A. ...	*Determination of the Stresses Produced by the Landing Impact in the Bulkheads of a Seaplane Bottom.* (Report No. 449 of the Central Aero-Hydrodynamical Institute, Moscow, 1939.) (V. M. Darevsky, N.A.C.A. Tech. Memo., No. 1,055, Jan., 1944, pp. 1-23.)
314	20698	France ...	*Flight Tests of Latécòere 631 (Giant Flying Boat).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 24.)
315	20735	U.S.A. ...	*Directional Stability of Flying Boat Hulls During Taxi-ing.* (J. D. Pierson, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-13.)
			Helicopters and Autogyros.
316	20100	U.S.A. ...	*Helicopter and Gyroplane Developments in the U.S.A.* (Inter.. Avia., Nos.894-895, 18/11/43, pp. 18-19.)
317	20106	G.B.	*Helicopter Developments in Great Britain.* (Inter. Avia., Nos.. 894-895, 18/11/43, p. 15.)
318	20140	Canada ...	*Structural Differences—Autogyro and Helicopter.* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, p. 140.)

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319	20183	U.S.A. ...	*What is the Helicopter's True Commercial Future?* (H. E. Larsen and J. S. Pecker, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 116-117, 328-335.)
320	20209	U.S.A. ...	*Higgins Helicopters (Designs for 14-Passenger Airliners).* (Aviation News, Dec.,. 1943, pp. 9-10.)
321	20563	U.S.A. ...	*Sikorsky Helicopter V.S. 300.* (Flugsport, Vol. 35, No. 14, 20/10/43, pp. 205-206.)
322	20798	U.S.A. ...	*The Helicopter and Autogyro.* (U.S. Air Services, Vol. 29, No. 1, January, 1944, p. 26.)
323	20921	G.B.	*A Jet Propelled Helicopter.* (Aeroplane, Vol. 66, No. 1,711, 10/3/44, p. 279.)

Propellers.

324	20338	Spain ...	*The Contra-Rotating Airscrew in Substratosphere Flight.* (Anon, Revista de Aeronautica, Vol. 71, No. 19, June, 1942, pp. 437-438.)
325	20571	Germany ...	*Propeller Hub-Crankshaft Coupling.* (734,891.) (Rupp, Flugsport, Vol. 35, No. 14, 20/10/43, p. 57.)
326	20572	Germany ...	*Propeller Blade Root Support (Self-Adjusting).* (735,883.) (Argus, Flugsport, Vol. 35, No. 14, 20/10/43, p. 57.)
327	20573	Germany ...	*Spinner for V.P. Airscrews.* (734,008.) (Messerschmitt, Flugsport, Vol. 35, No. 14, 20/10/43, p. 57.)
328	20577	Germany ...	*Variable Pitch Mechanism Operated by Thermal Expansion of Control Member (Electrically Heated).* (734,871.) (A.E.G., Flugsport, Vol. 35, No. 14, 20/10/43, p. 58.)
329	20578	Germany ...	*Hydraulically Operated V.P. Airscrew.* (734,941.) (Escher Wyss, Flugsport, Vol. 35, No. 14, 20/10/43, p. 58.)
330	20651	U.S.A. ...	*Airscrew Having a Variable Pitch.* (Patent Specification 2,138,339.) (Lucien Edouard Chauviere.)
331	20731	U.S.A. ...	*Aerodynamic Instability in Unbalanced Lifting Rotor Blades.* (R. M. Rosenberg, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-38.)
332	20744	U.S.A. ...	*Propeller Design Requirements.* (H. M. McCoy, Preprints of the Institute of the Aeronautical Sciences, 12th Annual Meeting, 25/1/44, pp. 1-26.)
333	21093	U.S.A. ...	*Propeller Coefficients.* (M. M. Munk, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 196-202.)
334	29943	U.S.A. ...	*A Tabular Method of Propeller Blade Stress Analysis (Correspondence).* (Various Authors, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 317-320.)

Performance, Stability, Take-off.

335	20031	U.S.A. ...	*Experimental Investigations in Aircraft Dynamics (Experimental Vibration Studies).* (W. B. Bergen, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 233-249.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
336	20050	U.S.A. ...	*Rudder Control and the Manœuvrability of Ships.* (R. A. Collacott, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 704-714.)
337	20083	G.B.	*Vibrations in Aircraft.* (R. G. Manley, Aircraft Engineering, Vol. 16, No. 180, Feb., 1944, pp. 38-40, 49.)
338	20176	U.S.A. ...	*The Elements of Field Weight and Balance Control.* (J. Syers, S.A.W.E. Preprints, Paper No. 19.)
339	20177	U.S.A. ...	*The Effect of Overload and Unbalance on Long Range Operation.* (J. B. Childers, S.A.W.E. Preprints, Paper No. 25.)
340	20199	U.S.A. ...	*Cruise Control for Flying Efficiency. Part V—Time and Fuel Requirements.* (D. Speas and others, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 215-217, 324-328.)
341	20416	U.S.A. ...	*Measuring the Take-off.* (M. M. Munk, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 242, 266-268.)
342	20730	U.S.A. ...	*A Direct Method of Calculating the Maximum Rate of Climb, Top Speed and Other Useful Performance Characteristics of a Helicopter in Powered Flight.* (W. Castles, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-21.)
343	20734	U.S.A. ...	*The Correlation of Aircraft Take-off and Landing Characteristics with Airport Size.* (A. L. Morse, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-13.)
			Testing and Calculations.
344	19172	G.B.	*The Polish Stratosphere Balloon.* (S. Mazurek, Aeronautics, Vol. 9, No. 3, October, 1943, pp. 39-41.)
345	20193	U.S.A. ...	*Flight Testing with a Thrust Meter.* (G. L. Brady, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 179-183, 303.)
346	20211	U.S.A. ...	*Wright Field's New All-Weather Chamber for Testing Army Equipment for Use in Any Climate.* (Aviation News, Dec., 1943, p. 13.)
347	20336	Spain ...	*Different Methods of Determining Rising Air Currents.* (F. Mararambros, Revista de Aeronautica, Vol. 71, No. 19, June, 1942, pp. 427-433.)
348	20363	U.S.A. ...	*C.A.A. Develops Devices for Testing Pilots' Aptitude.* (Civil Aeronautics Journal, Vol. 5, No. 1, 15/1/44, p. 7.)
349	20741	U.S.A. ...	*The Influence of Structural Deformation on Aeroplane Characteristics.* (A. H. Flax, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-30.)
			De-icing.
350	20015	U.S.A. ...	*Exhaust Heat Wing De-icing Adopted by the U.S.A.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 14.)

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351	20169	Switzerland ...	*New De-icing Developments.* (Inter. Avia., Nos. 898-899, 11/12/43, p. 20.)
352	20329	Spain ...	*Icing of Aircraft.* (J. B. L. Cayetano, Revista de Aeronautica, Vol. 77, No. 25, Dec., 1942, pp. 442-449.)
353	20337	Spain ...	*Experimental Contribution of the Problem of Airscrew De-icing.* (Anon, Revista de Aeronautica, Vol. 71, No. 19, June, 1942, pp. 435-437.)
354	20459	G.B.	*De-icing Variable Control.* (Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 71.)
355	20983	U.S.A. ...	*New Device Keeps Ice from Propellers (Use of Conductive Rubber-Uskon).* (U.S. Air Services, Vol. 28, No. 10, October, 1943, p. 46.)
			Maintenance and Salvage.
356	19396	U.S.A. ...	*Aircraft Repair and Maintenance (Organisation of Aircraft Repair, Ltd., of Edmonton).* (G. McCallum, Commercial Aviation, Vol. 5, No. 10, October, 1943, pp. 71-76.)
357	19505	U.S.A. ...	*American Airlines Propeller Overhaul Shop.* (E. E. Thorp, Aviation, Vol. 42, No. 11, November, 1944, pp. 205-208, 290-291.)
358	19592	U.S.A. ...	*Cracking of Wooden Wing Spars in Aeroplanes Operated in Arid Regions (C.A.A. Regulations).* (Civil Aeronautics Journal, Vol. 4, No. 12, 15/12/43, p. 166.)
359	19635	U.S.A. ...	*Air Service Command Salvages Aircraft (Methods of Picking Up Wrecked Aircraft).* (Aviation Maintenance, Vol. 1, No. 1, December, 1943, pp. 67-72.)
360	20187	U.S.A. ...	*Engineering Aspects of Airline Maintenance (American Airlines Practice).* (D. North, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 136-137, 344.)
361	20188	U.S.A. ...	*Navy Ingenuity in Propeller Maintenance.* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 142-143.)
362	20191	U.S.A. ...	*Watch Your Tyres! (Methods of Tyre Inspection and Maintenance).* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 156-158.)
363	20401	U.S.A. ...	*Switchgear Maintenance.* (P. R. Pierson, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 170, 268-271.)
364	20522	U.S.A. ...	*American Airlines Maintenance.* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 25-34.)
365	20523	U.S.A. ...	*De-icer Care and Maintenance.* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 35-38, 116-120.)
366	20525	U.S.A. ...	*C.A.A. Inspects for Safety.* (A. F. Notley, Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 48-49, 142-146.)
367	20529	U.S.A. ...	*Magnetic Inspection.* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 60, 108-110.)
368	20530	U.S.A. ...	*Maintenance of Aircraft Control Cords and Cables.* (A. J. Morgan, Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 61-63.)

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369	20531	U.S.A. ...	*Snow and Ice on Airport Pavements.* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 64-65, 140-142.)
370	20535	U.S.A. ...	*Facts About Taps (Prevention of Tapping Speeds and Lubricants).* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 72-73.)
371	20536	U.S.A. ...	*Care of Tyres and Tubes (Charts, etc.).* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 74-86.)

Airfields and Seadromes.

372	20001	U.S.A. ...	*Unique Seadrome Markers to Aid Night Flight Operations (Photo).* (American Aviation, Vol. 7, No. 16, 15/1/44, p. 80.)
373	20026	Switzerland ...	*Swiss Aerodrome Projects.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 30.)
374	20126	U.S.A. ...	*Idlewild Airport—New York.* (Inter. Avia., No. 893, 8/11/43, pp. 1, 24.)
375	20271	U.S.A. ...	*Airport Design Information* (8/5/41). (C.A.A. Publications of the Department of Commerce, pp. 1-61.)
376	20272	U.S.A. ...	*Installation of Airport Rotating Beacon.* (C.A.A. Airport Division Specification No. L-101, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-5.)
377	20273	U.S.A. ...	*Installation of Airport Code Beacon (Airport Identification Beacon).* (C.A.A. Airport Division Specification No. L-102, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-4.)
378	20274	U.S.A. ...	*Installation of Airport Beacon Towers.* (C.A.A. Airport Division Specification No. L-103, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-8.)
379	20275	U.S.A. ...	*Installation of Contact Lights and Other Flush Marker Lights.* (C.A.A. Airport Division Specification No. L-104, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-7.)
380	20276	U.S.A. ...	*Installation of Cone Mounted Lights.* (C.A.A. Airport Division Specification No. L-105, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-5.)
381	20277	U.S.A. ...	*Airport Lighting.* (Civil Aeronautics Bulletin No. 10, 1/3/44.) (C.A.A. Publications of the Department of Commerce, pp. 1-39.)
382	20278	U.S.A. ...	*Installation of Obstruction Lights.* (C.A.A. Airport Division Specification No. L-106, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-4.)
383	20279	U.S.A. ...	*Installation of Illuminated Wind Cone.* (C.A.A. Airport Division Specification No. L-107, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-4.)

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384	20280	U.S.A. ...	*Installation of Underground Cable.* (C.A.A. Airport Division Specification No. L-108, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-8.)
385	20281	U.S.A. ...	*Installation of Transformer Vault.* (C.A.A. Airport Division Specification No. L-109, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-6.)
386	20282	U.S.A. ...	*Installation of Underground Duct.* (C.A.A. Airport Division Specification No. L-110, 1/11/43.) (C.A.A. Publications of the Department of Commerce, pp. 1-6.)
387	20283	U.S.A. ...	*Installation of Building Wiring.* (C.A.A. Airport Division Specification No. L-111, 1/11/43.) (C.A.A. Publication of the Department of Commerce, pp. 1-9.)
388	20284	U.S.A. ...	*Standard Specifications for Airport Lighting. Part I—Equipment and Materials.* (Specification C.A.A. 606, 1/5/42.) (C.A.A. Publications of the Department of Commerce, pp. 1-58.)
389	20295	G.B.	*Practical Considerations on the Bearing Capacity of Ground.* (R. R. Minikin, Civil Engineering, Vol. 39, No. 451, Jan., 1944, pp. 4-8.)
390	20296	G.B.	*Development in Solidifying Loose Soils.* (A. G. Arend, Civil Engineering, Vol. 39, No. 451, Jan., 1944, pp. 16-17.)
391	20374	U.S.A. ...	*Los Angeles Airport to be Developed in Five Stages.* (Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 73-74.)
392	20587	Germany ...	*Aerodrome Beacon with Uneven Rotation (Elliptic Gears).* (733,349.) A.E.G., Flugsport, Vol. 35, No. 14, 20/10/43, p. 64.)
393	20626	U.S.A. ...	*Soil Pressure Distribution Along Flexible Foundations.* (A. Bull, Journal of the Franklin Institute, Vol. 233, No. 6, June, 1943, pp. 559-580.)
394	20688	G.B.	*Wire Netting Runways (Not Suitable for Removal to Alternate Aerodromes).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 15.)
395	20709	Switzerland ...	*Utzenstorf Airport Plans.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 36-37.)
396	20710	G.B.	*Gatwick Airport Plans.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 35-36.)
397	21007	G.B.	*Aerodrome Defence.* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, pp. 304-305.)
398	21086	U.S.A. ...	*Hot Dope Finishing of Fabric Surfaces (Adopted by Pan-American Airways).* (H. B. Marsh and R. H. Natwick, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 152-156.)

General (Historical, etc.).

399	19258	U.S.A. ...	*Wilbur and Orville Wright (Review of Their Contribution to Aeronautical Science; Numerous Photographs) (40th Anniversary Number).* (Various Authors, U.S. Air Services, Vol. 28, No. 12, Dec., 1943, pp. 9-30.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
400	20097	Switzerland ...	*The Fate of Aeronautics in France.* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 1-6.)
401	20104	France ...	*Two-Seater Trainer and Towing Aircraft, Design Competition.* (Inter. Avia., Nos. 894-895, 18/11/43, pp. 13-14.)
402	20310	Spain ...	*An Extraordinary Flight; Communication Between Rome and Tokyo.* (R. M. de B., Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 269-279.)
403	20394	U.S.A. ...	*The Birth of Aviation.* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 113-115, 260-262.)
404	20537	G.B.	*Research for Aeronautics: Its Planning and Application—II.* (W. S. Farren, Engineer, Vol. 177, No. 4,599, 3/3/44, pp. 164-167.)
405	20567	Germany ...	*Prize Award of Lilienthal Society for* 1943 (*Total* 100,000 *Marks*). (Flugsport, Vol. 35, No. 14, 20/10/43, p. 214.)
406	20568	Germany ...	*Results of Model Aircraft Competition* (*Power-Driven Oscillating Wing Type Covers* 5 *km. in* 16 *Minutes*). (Flugsport, Vol. 35, No. 14, 20/10/43, p. 219.)
407	20691	France ...	*French National Aircraft Development Centre at Cannes.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 22-28.)
408	20936	Germany ...	*Jachtmann's* 56-*Hour Glider Record.* (A. Juhre, Der Deutsche Sportflieger, Vol. 10, No. 11, Nov., 1943, pp. 178-179.)

ENGINES AND ACCESSORIES.

Named Engine Types.

409	20014	U.S.A. ...	*Franklin Air-Cooled Engines for Light Aircraft.* (Inter. Avia., Nos. 896-897, 30/11/43, p. 13.)
410	20020	G.B.	*Bristol Sleeve Valve Engine Developments* (*Hercules and Centaurus*). (Inter. Avia., Nos. 896-897, 30/11/43, pp. 16-17.)
411	20021	G.B.	*Rotol Auxiliary Power Plants P.* 6 *Weighing* 450 *lb.* (60 *h.p. Engine Driving* 20 *Kilowatt A.C. and* 3 *Kilowatt D.C. Generators*). (Inter. Avia., Nos. 896-897, 30/11/43, pp. 17-18.)
412	20150	Canada ...	*More Power for the Anson V* (*Fitted with P. and W. Wasp Engines*). (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, p. 102.)
413	20400	U.S.A. ...	*New Wright* 220 *h.p. Engine—The Cyclone* 18. (Aero Digest, Vol. 43, No. 6, December, 1943, p. 166.)
414	20763	Germany ...	*Junkers' Jumo* 211*D Petrol Injection Engine.* (Inter. Avia., Nos. 886-887, 27/9/43, p. 12.)
415	20806	U.S.A. ...	*Improvements in German DB-*601 *N Aircraft Engine.* (M. W. Bourdon, Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, pp. 22-25.)
416	20807	U.S.A. ...	*Inertia Scavenging and Uniflow Operation Combined in New Swedish Two-Stroke Engine* (*Kylen*). (Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, pp. 25, 92.)

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417	20828	G.B.	*The "Griffon" Twelve-Cylinder Aero Engine.* (Engineer, Vol. 177, No. 4,600, 10/3/44, pp. 196-197.)
418	20915	G.B.	*New Gnome-Rhone Air-Cooled Radial Engine.* (Aeroplane, Vol. 66, No. 1,711, 10/3/44, p. 260.)

Design and Installation.

419	20325	Spain ...	*Progress in Air-Cooled Aero Engines.* (Anon. Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, p. 296.)
420	20584	Germany ...	*Elastic Support for Engines Mounted in Tandem.* (736,594.) (Voigt, Flugsport, Vol. 35, No. 14, 20/10/43, pp. 60-61.)
421	20585	Germany ...	*Combinations of Fixed and Retractable Radiators.* (735,302.) (Arado, Flugsport, Vol. 35, No. 14, 20/10/43, p. 61.)
422	20732	U.S.A. ...	*Aircraft Power Plant Fire Protection.* (H. L. Hansberry, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-25.)
423	20965	G.B.	*The Ducted Radiator (Thrust from Increased Air Velocity).* (C. L. Hinings, Flight, Vol. 45, No. 1,838, 16/3/44, p. 294.)
424	21006	G.B.	*Synthetic Rubber Components in Aero Motors.* (Aeroplane, Vol. 66, No. 1,712, 17/3/44, p. 303.)
425	21062	G.B.	*Installation and Care of Electric Motors.* (Mechanical World, Vol. 115, No. 2,981, 18/2/44, pp. 171-175.)

Wear and Efficiency.

426	20147	Canada ...	*Efficiency of the "Cheetah" Engine.* (H. P. Wells, Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 69-72, 80.)
427	20167	Switzerland ...	*American Statistics of Civil Aircraft Accidents Due to Engine Failure (Engines of 90 h.p. or Less).* (Inter. Avia., Nos. 898-899, 11/12/43, p. 20.)
428	20940	Germany ...	*Power Plant and High Altitude Flight (Slightly Abridged Version of Article by Same Author in Luftwissen, Vol. 10, No. 8, p. 9).* (W. von der Nüll, Motor Schau, Vol. 7, Nos. 10, 11, 12, Oct., Nov., Dec., 1943, pp. 214-221.)
429	21048	U.S.A. ...	*Part-Throttle Operation and Control of a Piston Ported Two-Stroke Cylinder.* (A. R. Rogowski and C. F. Taylor, N.A.C.A. Technical Notes, Vol. —, No. 919, November, 1943, pp. 1-27.)
430	21049	——	*The Effect of Inlet Valve Design, Size and Lift on the Air Capacity and Output of a Four-Stroke Engine.* (J. C. Livengood and J. D. Stanitz, N.A.C.A. Technical Notes, No. 915, November, 1943, pp. 1-20.)

Accessories.

431	19673	Germany ...	*Friction Measurements on Small Oil Lubricated Bearings.* (Z.V.D.I., Vol. 87, Nos. 51-52, 25/12/43, p. 808.)

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432	20095	G.B.	*Static and Clinging Friction of Pivot Bearings.* (M. C. Hunter, Engineering, Vol. 157, No. 4,075, 18/2/44, pp. 138-140.)
433	20220	——	*Air Filtration (Account of Two Types of Filters—The Vokes Aerovee and the Vokes Three-Ply).* (Flight, Vol. 45, No. 1,835, 24/2/44, pp. 207-209.)
434	20234	U.S.A. ...	*Piston Ring Pressure Distribution.* (A.T.Z., Vol. 45, No. 3, 10/2/42.) (M. Kuhn, N.A.C.A. Tech. Memo., No. 1,056, Dec., 1943, pp. 1-11.)
435	20266	G.B.	*Pressed Aircraft Pistons—Part II.* (Aircraft Production, Vol. 6, No. 65, March, 1944, pp. 139-142.)
436	20286	U.S.S.R. ...	*Adaptation of Carburettors for Low Grade Fuels.* (Perchikhin, M.T.S. (Tractor Engineering Survey), Vol. 3, No. 3, March, 1943, pp. 33-36.)
437	20300	U.S.S.R. ...	*Increasing the Efficiency of Chain Drives.* (Dymschuz, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, pp. 11-22.)
438	20301	U.S.S.R. ...	*Theoretical Principles for Increasing the Life of Piston Rings.* (Ginzburg, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, pp. 23-40.)
439	20342	G.B.	*Variable Speed Electrical Couplings.* (H. E. Hutter, Mechanical World, Vol. 115, No. 2,980, 11/2/44, pp. 147-148.)
440	20343	G.B.	*The Fitting and Maintenance of Ball and Roller Bearings.* (R. K. Allan, Mechanical World, Vol. 115, No. 2,980, 11/2/44, pp. 149-152.)
441	20702	France ...	*Transmission Gear for Side by Side Engines Developed by Centre N.C. 71 (Photograph).* (Inter. Avia., Nos. 901-902, 10/1/44, p. 1.)
442	20718	G.B.	*Powdered Metal Piston Rings.* (British Patent No. 551,232.) (Automobile Engineer, Vol. 34, No. 447, March, 1944, p. 126.)
443	20756	Germany ...	*Replacement of Bronze by Steel in Worn Gears.* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, pp. 790-792.)
444	20778	G.B.	*Valves, Gauges and Similar Fittings for Land Boiler Installations.* (G. H. Pearson, Mechanical World, Vol. 115, No. 2,982, 25/2/44, pp. 199-202.)
445	20837	G.B.	*Bibliography on Tilting Pad Bearings.* (Michell, Feb., 1944.) (R.T.P.3, Bibliography No. 97.)
446	20997	G.B.	*Valves, Gauges and Similar Fittings for Land Boiler Installations—II.* (G. H. Pearson, Mechanical World, Vol. 115, No. 2,983, 3/3/44, pp. 249-251.)
			Turbines, Pumps, Superchargers.
447	20034	U.S.A. ...	*Temperature Effects on Turbine Supercharger Installations.* (P. Colman, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 261-269.)
448	20139	Canada ...	*Supercharging Aircraft Engines (Part I).* (P. Hoffman, Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 122-134.)

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449	20216	G.B.	*Turbo-Supercharging (Details of the G.E.C. Unit).* (Flight, Vol. 45, No. 1,835, 24/2/44, p. 200.)
450	20386	G.B.	*Corrosion of Boiler Tubes.* (S. B. Jackson, Engineering, 25/2/44, p. 154.)
451	20431	U.S.A. ...	*Conservation of Centrifugal Pumps.* (B. L. Cody, Chemical and Engineering News, Vol. 21, No. 24, 25/12/43, pp. 2103-2106.)
452	20628	U.S.A. ...	*The Gas Turbine.* (J. T. Retaliata, Vol. 233, No. 6, Journal of the Franklin Institute, June, 1943, pp. 614-615.)
453	20703	France ...	*Gnome Rhone Three-Speed Supercharger.* (Inter. Avia., Nos. 901-902, 10/1/44, p. 26.)
454	20830	G.B.	*Transportable Turbo-Alternators.* (Engineer, Vol. 177, No. 4,600, 10/3/44, p. 198.)
455	20905	G.B.	*Efficiencies and Outputs of Combustion Turbines.* (S. J. Davies, Engineering, Vol. 157, No. 4,078, 10/3/44, pp. 181-184.)
456	20912	G.B.	*Bellows Type Vacuum Pumps.* (Engineering, Vol. 157, No. 4,078, 10/3/44, p. 200.)
457	20970	G.B.	*The Future of the Gas Turbine, No. 1.* (B. Wood, Engineer, Vol. 177, No. 4,601, March, 1944, pp. 202-204.)
458	21064	G.B.	*A Modern Producer-Gas Plant (Marischka Producer).* (H. R. Forman, Mechanical World, Vol. 115, No. 2,981, 18/2/44, pp. 178-179.)
			Heat Power Plants, Oil and Diesel Engines.
459	20051	U.S.A. ...	*A New Prime Mover (Aerodynamic Heat Power Plant).* (Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 714-718.)
460	20288	G.B.	*Fractional Horse-Power Motors.* (Electrician, Vol. 132, No. 3,428, 11/2/44, pp. 115-116.)
461	20302	U.S.S.R. ...	*A New Gas Engine.* (Keimach, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, p. 46.)
462	20322	Spain ...	*Investigation on the Combustion Lag in the Diesel Cycle.* (J. H. Cots, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 279-285.)
463	20827	G.B.	*The Three-Cylinder Doxford Opposed Piston Marine Oil Engine.* (W. H. Purdie, Engineer, Vol. 177, No. 4,600, 10/3/44, pp. 194-196.)
464	20385	G.B.	*1,000 kW. Wind Power Electric Generating Plant (Further Data).* (Engineering, Vol. 157, No. 4,076, 25/2/44, p. 148.)
465	20971	G.B.	*The Three-Cylinder Doxford Opposed Piston Marine Oil Engine—II.* (W. H. Purdie, Engineer, Vol. 177, No. 4,601, March, 1944, pp. 207-208.)
			Testing and Maintenance.
466	20192	U.S.A. ...	*Review of Maintenance Equipment (Portable Oil Tank Cleaner, Spark Plug, Electric Profiler, etc.).* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 163-177.)
467	20208	Sweden ...	*High Altitude Engine Test Benches (German and Italian).* (G. Larsson, Flyg, No. 22, 4-17/11,43, pp. 21-24.)

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468	20411	U.S.A. ...	*"Exactor" Hydraulic Control for Engine Test Stands.* (C. G. Hebel, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 214-216.)
469	20908	G.B.	*Structural Analysis by Models.* (Engineering, Vol. 157, No. 4,078, 10/3/44, pp. 191-192.)
470	20941	Germany ...	*Flight Testing of B.M.W. Engines.* (W. Farrenkopf, Motor Schau, Vol. 7, Nos. 10, 11, 12, Oct., Nov., Dec., 1943, pp. 222-224.)
			De-icing.
471	20142	Canada ...	*New Type Portable Engine Heater (Herman Nelson).* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, p. 162.)
			Jet Propulsion.
472	20254	G.B.	*Jet Propulsion for Aircraft.* (Engineer, Vol. 177, No. 4,598, 25/2/44, p. 149.)
473	20690	G.B.	*Jet Propulsion Developments in Great Britain and the U.S.A.* (Inter. Avia., Nos. 901-902, 10/1/44, pp. 16-17.)
474	20973	G.B.	*The Jet Propulsion of Aircraft.* (R. M. Helsdon, Engineer, Vol. 177, No. 4,601, March, 1944, p. 213.)
			Starting-up, Ignition.
475	20173	Switzerland ...	*A.B.A. Pressure Priming System for Starting Up Aircraft Engines.* (Inter. Avia., Nos. 898-899, 11/12/43, pp. 23-24.)
476	20373	U.S.A. ...	*Ignition Troubles Relieved by Air Pump (Supercharged Ignition Harness).* (R. L. Anderson, Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 64-66.)
477	20458	G.B.	*Cartridge Starting Device for Aero Engines (Bendix Patent).* (Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 59.)
			FUELS AND LUBRICANTS.
			Liquid Fuels.
478	20292	G.B.	*Liquid Fuels and Organic Chemicals from Coal and Home-Refined Petroleum.* (H. Moore, Petroleum Times, Vol. 48, No. 1,214, 5/2/44, pp. 67-70, 79-86.)
479	20334	Spain ...	*Knocking and Anti-Knock Mixtures.* (B. Rocchi, Revista de Aeronautica, Vol. 70, No. 18, May, 1942, pp. 364-365.)
480	20494	G.B.	*Electronic "Chemist" to Speed Petrol and Synthetic Rubber (Use of "Mass Spectrometer" as Laboratory Tool).* (Petroleum Times, Vol. 47, No. 1,211, 25/12/43, p. 706.)
481	20720	G.B.	*Home Produced Fuel.* (Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 85-86.)
482	20753	Germany ...	*Nomogram for Determining H_2 Content of Diesel Fuels from the Calorific Value.* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, p. 784.)

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483	20841	G.B.	*Summary of Literature on the Determination of Dew Points of Complex Hydrocarbon Mixtures, with Particular Reference to Petrols and Kerosenes (Prepared by the R.A.E.).* (R.T.P. Bibliography No. 101.)
484	20270	G.B.	*Petroleum Refining Terminology (with Discussion) (Benzine Manufacture and Refining).* (M. E. Kelly and D. A. Howes, Journal of the Institute of Petroleum, Vol. 30, No. 241, January, 1944, pp. 1-2.)
485	20892	G.B.	*The Filter Freezing Temperature of Aviation Fuels.* (J. M. A. Court, Journal of the Institute of Petroleum, Vol. 29, No. 239, November, 1943, pp. 329-331.)
486	20906	G.B.	*Liquid Fuels and Chemicals from Coal Petroleum.* (H. Moore, Engineering, Vol. 157, No. 4,078, 10/3/44, p. 185.)
			High Octane Fuels.
487	20061	G.B.	*Viscosities at the Boiling Point of Some Primary Amines, Cyclohexane and Some of its Derivatives.* (J. H. Friend and W. D. Hargreaves, Philosophical Magazine, Vol. 35, No. 240, Jan., 1944, pp. 57-64.)
488	20493	G.B.	*The 100-Octane Production Programme (Present State of Plant Construction in U.S., Canada and N.W.I.).* (Petroleum Times, Vol. 47, No. 1,211, 25/12/43, pp. 704, 724.)
489	20681	Switzerland ...	*New Fuels Render B.M.E.P. 500 Psi Possible.* (Inter. Avia., No. 900, 24/12/43, pp. 16-17.)
490	21059	U.S.A. ...	*100 Octane Production in the U.S.A. (P.A.W. Brochure).* (National Petroleum News, Vol. 35, No. 50, 15/12/43, pp. 26-30, 42-43.)
			Gaseous Fuels.
491	20285	U.S.S.R. ...	*Diluted Gases.* (Sokolov, M.T.S. (Tractor Engineering Survey), Vol. 3, No. 3, March, 1943, pp. 25-27.)
			Oils and Lubricants.
492	20293	G.B.	*Troubles in Germany's Diesel Oil Supplies.* (L. Thoma, Petroleum Times, Vol. 48, No. 1,214, 5/2/44, pp. 73, 86.)
493	20341	G.B.	*The Lubrication of Wire Ropes.* (E. V. Paterson, Mechanical World, Vol. 115, No. 2,980, 11/2/44, pp. 143-146, 163-165.)
494	20376	U.S.A. ...	*Aircraft Engine Lubricating Oils.* (Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 83-84.)
495	20410	U.S.A. ...	*Union Oil Opens New High Octane Refinery.* (Aero Digest, Vol. 43, No. 6, December, 1943, p. 213.)
496	20495	G.B.	*Oil Transport and Post-War Reconstruction in Europe.* (P. H. Frankel, Petroleum Times, Vol. 47, No. 1,211, 25/12/43, pp. 708-714.)
497	20496	G.B.	*A.S.T.M. Standards on Petroleum Products and Lubricants, 1943.* (Petroleum Times, Vol. 47, No. 1,211, 25/12/43, p. 714.)

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498	20497	G.B.	*Conservation and Rationing of British Oil Supplies.* (Petroleum Times, Vol. 47, No. 1,211, 25/12/43, pp. 716-720.)
499	20498	G.B.	*The Hydrogenation Process (Survey of Developments and the Co-operation Efforts of the I.G. Farbenindustrie and Standard Oil).* (R. T. Haslam, Petroleum Times, Vol. 47, No. 1,211, 25/12/43, pp. 699-700, 723-724.)
500	20557	G.B.	*Oil from Sunflower Plants.* (Nature, Vol. 153, No. 3,878, 26/2/44, p. 248.)
501	20594	G.B.	*The Factor of Estonian Oil in the War Strategy.* (Petroleum Times, Vol. 48, No. 1,216, 4/3/44, p. 146.)
502	20713	G.B.	*Engine Lubrication—the Problem of Oil Stability.* (Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 107-108.)
503	20863	U.S.A. ...	*Standard Oil Development Company and its Contribution to Chemical Technology.* (F. A. Howard, Industrial and Engineering Chemistry (News Edition), Vol. 22, No. 2, 25/1/44, pp. 98-102.)
504	20889	G.B.	*A Study of Oil Oxidation as Related to Lubrication. Part I—Apparatus, Technique and Preliminary Results.* (P. G. Exline and others, Journal of the Institute of Petroleum, Vol. 29, No. 239, November, 1943, pp. 295-307.)
505	20907	G.B.	*Economy in Cutting Oils and Coolants.* (Engineering, Vol. 157, No. 4,078, 10/3/44, p. 185.)
506	20998	G.B.	*Cutting Oil Economy (Bulletin of the Ministry of Fuel and Power).* (Mechanical World, Vol. 115, No. 2,983, 3/3/44, p. 251.)
507	21029	G.B.	*Cutting Oils.* (Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 182-183.)
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508	20007	G.B.	*The Catalysis of the Liquid-Phase Stage of Coal Hydrogenation.* (N. Booth, J. of the Soc. of Chem. Ind., Vol. 63, No. 1, Jan., 1944, pp. 1-3.)
509	20524	U.S.A. ...	*U.S. Army, Navy, R.A.F. Standardisation of Petroleum Speciality Products (Chart).* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 39-41.)
510	20843	G.B.	*Preventing Internal Corrosion of Refinery Piping—Advantages in Use of Sodium Nitrite.* (Petroleum Times, Vol. 48, No. 1,216, 4/3/44, pp. 149-150.)
511	20871	G.B.	*Collection of Abstracts.* (Journal of the Institute of Petroleum, Vol. 30, No. 241, January, 1944, pp. 1A-54A.)
512	20890	G.B.	*Petroleum as a Source of Synthetic Materials (Discussion).* (Journal of the Institute of Petroleum, Vol. 29, No. 239, November, 1943, pp. 308-322.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
513	20891	G.B. ...	*Estimation of Mercaptan Sulphur Alone or in Presence of Elementary Sulphur in Petroleum Products.* (E. R. H. Davies and J. W. Armstrong, Journal of the Institute of Petroleum, Vol. 29, No. 239, November, 1943, pp. 323-328.)
514	20893	G.B. ...	*Collection of Abstracts.* (Journal of the Institute of Petroleum, Vol. 29, No. 239, November, 1943, pp. 399A-420A.)
515	21058	U.S.A.	*What Will We Do with Post-War Fuels?* (C. A. Chayne, National Petroleum News, Vol. 35, No. 50, 15/12/43, pp. 17-20.)

THEORY OF ELASTICITY.

516	20053	U.S.A.	*Tapered and Stepped Columns.* (A. H. Church, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 756-766.)
517	20084	G.B. ...	*Analysis of Plane Braced Frames (Secondary Stresses Due to Rigidity of Joints).* (R. J. Cornish, Aircraft Engineering, Vol. 16, No. 180, Feb., 1944, pp. 41-45.)
518	20086	G.B. ...	*Shear Stress in a Tapering Beam.* (G. B. Saksena, Aircraft Engineering, Vol. 16, No. 180, Feb., 1944, pp. 47-49.)
519	20299	U.S.S.R.	*The Safety Factor Under Alternating Loads.* (Likharev, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, p. 510.)
520	20333	Spain	*Strength Calculation of Monocoque Fuselages (Conclusion).* (Anon, Revista de Aeronautica, Vol. 69, No. 17, April, 1942, pp. 281-286.)
521	20358	G.B. ...	*Partial Yielding Round a Cylindrical Cavity Under Internal Pressure (with Particular Reference to the Plastic Field Round a Solid Rivet in Thin Plating).* (K. H. Swainger.)
522	20613	U.S.A.	*Optical Aspects of Three-Dimensional Photoelasticity.* (R. D. Mindlin, Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, pp. 349-363.)
523	20630	U.S.A.	*An Elastic Theory for Rubber.* (E. Latshaw, Journal of Franklin Institute, Vol. 234, No. 1, July, 1942, pp. 63-73.)
524	20737	U.S.A.	*Flexural Strength in the Plastic Range of Rectangular Magnesium Extrusions.* (F. A. Rappleyea and E. J. Eastman, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-13.)
525	20845	U.S.S.R.	*The Liquid Shear Modulus and its Temperature Relationship.* (M. Kornfeld, Reports of the Academy of Sciences, Vol. 38, No. 9, 1943, pp. 312-315.)
526	20850	U.S.S.R.	*Infinite Cylindrical Shell and Unbounded Thick Plate Under Stress.* (G. S. Shapiro, Reports of the Academy of Sciences, Vol. 37 (New Series), No. 9, 1942, pp. 258-260.)

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527	21014	Germany ...	*Statistical Distribution of Strength Characteristics of Wire Ropes.* (Stahl und Eisen, Vol. 64, No. 7, 17/2/44, pp. 112-113.)
528	21047	U.S.A. ...	*The Strength of Thin Wall Cylinders of D Cross-Section in Combined Pure Bending and Torsion.* (A. W. Sherwood, N.A.C.A. Technical Notes, No. 904, September, 1943, pp. 1-12.)
529	21051	——	*The Effect of the Type of Specimen on the Shear Strengths of Driven Rivets.* (W. H. Sharp, N.A.C.A. Technical Notes, Vol. —, No. 916, November, 1943, pp. 1-5.)
530	21052	U.S.A. ...	*The Effect of Surface Finish on the Fatigue Performance of Certain Propeller Materials.* (H. W. Russell, H. W. Gillett, L. R. Jackson and G. M. Foley, N.A.C.A. Technical Notes, No. 917, December, 1943, pp. 1-18.)

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A. Properties.

Al. and Mg. Alloys.

531	20040	U.S.A. ...	*On the Torsional Damping Capacity of Solid Magnesium Alloy Rods as Affected by Cold Working.* (A. U. Kutsay and A. J. Yorgiadis, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 303-310.)
532	20377	G.B.	*Magnesium Alloy Technology (Heat Treatment, Choice of Casting Alloys, Wrought Alloys).* (F. A. Fox, Metal Industry, Vol. 64, No. 8, 25/2/44, pp. 114-116.)
533	20380	U.S.A. ...	*Aluminium-Silicon Casting Alloys—Effect of Minor Alloying Elements.* (W. Bonsack, Metal Industry, Vol. 64, No. 8, 25/2/44, pp. 123-124.)
534	20381	G.B.	*Manufacture of Magnesia.* (Metal Industry, Vol. 64, No. 8, 25/2/44, pp. 125-126.)
535	20422	G.B.	*Aluminium-Silicon Casting Alloys—The Effect of Minor Alloying Elements (Aluminium-Magnesium and Aluminium-Zinc-Magnesium Alloys).* (W. Bonsack, Metal Industry, Vol. 44, No. 9, 3/3/44, p. 132.)
536	20423	G.B.	*Magnesium Alloy Technology (Surface Protection, Machinability, Recent Research, Applications).* (F. A. Fox, Metal Industry, Vol. 44, No. 9, 3/3/44, pp. 133-135.)
537	20602	U.S.A. ...	*Aluminium Alloys—Compositions, Properties and Designations of American Commercial Alloys (Data Sheet).* (Metal Progress, Vol. 45, No. 1, January, 1944, p. 102.)
538	20617	U.S.A. ...	*Process to Expand Magnesium Supply (Abstract).* (L. Velie, Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, p. 390.)
539	20780	G.B.	*The Working of Aluminium Bronzes.* (R. A. Collacott, Mechanical World, Vol. 115, No. 2,982, 25/2/44, pp. 207-209.)

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540	20823	G.B.	*Magnesium Products from Brine* (*U.S.A. Patent No.* 554,760). (Metal Industry, Vol. 64, No. 10, 10/3/44, p. 156.)
541	20824	G.B.	*Magnesium from Scrap* (*Patent No.* 555,412). (Metal Industry, Vol. 64, No. 10, 10/3/44, p. 156.)
542	20925	Germany ...	*Modern Views on Light Alloy Sheet Forming and Pressing* (*Effect of Nature and Heat Treatment of Various Al. and Mg. Alloys on Range of Deformation*). (H. Hornauer, Aluminium, Vol. 25, No. 6, June, 1943, pp. 229-239.)
543	20926	Germany ...	*Comparison of Stress Corrosion of Al.-Zn.-Mg. and Al.-Cu.-Mg. Alloys.* (H. Stiller, Aluminium, Vol. 25, No. 6, June, 1943, pp. 240-246.)
544	20927	Germany ...	*Field of Application of Secondary Al. Casting Alloys.* (A. Buckeley, Aluminium, Vol. 25, No. 6, June, 1943, pp. 247-250.)
545	20928	Germany ...	*The Electrometric Determination of Al. in Mg. Alloy by the Fluorid Methods.* (W. Mannchen, Aluminium, Vol. 25, No. 6, June, 1943, pp. 250-252.)
546	20948	G.B.	*Alloy Deposition—Present Position and Future Developments.* (J. R. I. Hepburn, Metal Industry, Vol. 64, No. 11, 17/3/44, pp. 168-170.)
547	20992	G.B.	*Deburring Aluminium Sections.* (Machinery, Vol. 64, No. 1,638, 2/3/44, p. 240.)
548	21050	U.S.A. ...	*Certain Mechanical Strength Properties of Aluminium Alloys 25 S-T and X 76 S-T.* (Thomas J. Dolan, N.A.C.A. Technical Notes, No. 914, October, 1943, pp. 1-30.)
			Iron and Steel.
549	19671	Germany ...	*Weld Crack Sensitivity of Steel and Method of Testing* (*Digest*). (K. L. Zeyn, Z.V.D.I., Vol. 87, Nos. 51-52, p. 802.)
550	20033	U.S.A. ...	*Mechanical Properties of Austenitic Stainless Steels.* (R. A. Lincoln and W. H. Mather, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 253-260, 272.)
551	20090	G.B.	*The Production of Low Sulphur Sponge Iron.* (Engineering, Vol. 157, No. 4,075, 18/2/44, p. 127.)
552	20311	U.S.S.R. ...	*The Improvement of Structural Carbon Steels.* (Gulyaev and Halperin, Steel, Vol. 3, Nos. 5-6, 1943, pp. 49-51.)
553	20391	G.B.	*Sheet Steel for Electrical Plant.* (Nature, Vol. 153, No. 3,876, 12/2/44, pp. 192-193.)
554	20464	G.B.	*The Use of Wetting Agents in the Degreasing of Sheet Steel.* (P. M. Fisk and F. F. Pollak, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 427.)
555	20466	G.B.	*The Mechanical Properties of Austenitic Stainless Steels.* (R. A. Lincoln and W. H. Mather, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 435-438, 443.)

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556	20598	U.S.A.	...	*Trends in Iron Foundry Metallurgy.* (J. S. Vanick, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 83-85.)
557	20599	U.S.A.	...	*Future Trends in High Alloy Steels.* (S. M. Norwood, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 86-87.)
558	20603	U.S.A.	...	*Production, Utility and Acceptance of the N.E. Steels.* (Various authors, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 109-144, 124.)
559	20953	G.B.	...	*Alloy Steels—High Temperature Tests.* (Electrical Review, Vol. 134, No. 3,456, 18/2/44, p. 230.)
560	21019	G.B.	...	*Modern Steel Making.* (Electrical Review, Vol. 134, No. 3,459, March, 1944, pp. 326-330.)
				Non-Ferrous Alloys.
561	20060	G.B.	...	*Note on the Solubility of Hydrogen in Palladium.* (E. H. Owen, Philosophical Magazine, Vol. 35, No. 240, Jan., 1944, pp. 50-57.)
562	20198	U.S.A.	...	*Association Standards for Copper and Brass (Data Sheets).* (Aviation, Vol. 42, No. 12, Dec., 1943, pp. 207-209.)
563	20287	G.B.	...	*Copper Metallurgy—Problems of Concern to the Electrical Machine Designer.* (Electrician, Vol. 132, No. 3,428, 11/2/44, pp. 114-115.)
564	20298	U.S.S.R.	...	*The Dispersion of Collagen and its Tanning Products in Copper-Ammonia Solution.* (Feldmann and Sokoloff, Light Industries, U.S.S.R., Vol. 3, No. 5, May, 1943, p. 2.)
565	20357	U.S.A.	...	*The Working of Cast Copper Base Alloys (Classification of Cast Copper Base Alloys, Machining and Finishing Operations, etc.).* (Machinist, Vol. 87, No. 41, 29/1/44, p. 16.)
566	20379	G.B.	...	*Test Bars for Non-Ferrous Castings—Need for Standardisation.* (W. A. Baker, Metal Industry, Vol. 64, No. 8, 25/2/44, pp. 119-122.)
567	20382	U.S.A.	...	*The Outlook for Zinc.* (Metal Industry, Vol. 64, No. 8, 25/2/44, p. 113.)
568	20425	G.B.	...	*Nickel and Nickel Alloys—Physical Characteristics at Sub-Zero Temperatures.* (W. A. Mudge, Metal Industry, Vol. 44, No. 9, 3/3/44, pp. 136-137.)
569	20428	G.B.	...	*Long Length Copper Tubes (I.C.I. Development).* (Metal Industry, Vol. 44, No. 9, 3/3/44, p. 140.)
570	20593	G.B.	...	*Bulletin of the British Non-Ferrous Metals.* (Feb., 1944, No. 176.)
571	20820	G.B.	...	*Metals of the Future (the Possible Future Utilisation of the Unfamiliar Metals).* (C. H. Mathewson, Metal Industry, Vol. 64, No. 10, 10/3/44, pp. 150-152.)
572	20822	G.B.	...	*Secondary Copper Base Materials—General and Economic Considerations Governing Their Utilisation.* (H. J. Miller, Metal Industry, Vol. 64, No. 10, 10/3/44, pp. 153-156.)
573	20946	G.B.	...	*Secondary Copper Base Materials.* (H. J. Miller, Metal Industry, Vol. 64, No. 11, 17/3/44, pp. 162-165.)

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575	20987	G.B.	*Stellite Alloy in Small Mechanisms (Instrument Bearing Pivots, Needle Valves, etc.).* (Machinery, Vol. 64, No. 1,638, 2/3/44, p. 237.)
			Plastics.
576	20093	G.B.	*Thermoplastic Cables.* (Engineering, Vol. 157, No. 4,075, 18/2/44, p. 132.)
577	20622	U.S.A. ...	*New Insulating Material (Perlite).* (Journal of the Franklin Institute, Vol. 233, No. 5, May, 1942, p. 464.)
578	20643	U.S.A. ...	*Improvements in Production of Synthetic Resins and the Manufacture of Films or Sheets Therefrom (Patent Specification* 483,222). (Kodak, Ltd.)
579	20644	U.S.A. ...	*Polyvinyl Acetal Resins (Patent Specification* 483,223). (Kodak, Ltd.)
580	20645	Germany ...	*Manufacture of Polymeric Basic Compounds (Patent Specification* 509,012). (I.G. Farbenindustrie Aktiengesellschaft.)
581	20646	Germany ...	*Manufacture of Polyvinyl Acetals (Patent Specification* 482,219). (I.G. Farbenindustrie Aktiengesellschaft.)
582	20647	Canada ...	*Improvements in and Relating to Manufacture of Vinyl Resins (Patent Specification* 465,873). (Shawinigan Chemicals, Ltd.)
583	20648	U.S.A. ...	*Polyvinyl Acetal Resin Compositions (Patent Specification* 497,737). (Carbide and Carbon Chemicals Corporation.)
584	20649	U.S.A. ...	*Polyvinyl Acetal Resin Compositions (Patent Specification* 497,739). (Carbide and Carbon Chemicals.)
585	20650	G.B.	*Improvements in and Relating to the Production of Synthetic Resins for Moulding (Patent Specification* 498,396). (Imperial Chemical Industries, Ltd.)
586	20653	U.S.A. ...	*Method of Preventing Polymerization of Vinyl Compounds and Reaction of Same with Aldehydes (Patent Specification* 1,768,434). (Kenneth G. Blaikie.)
587	20654	U.S.A. ...	*Production of Artificial Masses from Polymerized Vinyl Alcohols and Alephatic Aldehydes and Products Obtainable Thereby (Patent Specification* 1,955,068). (Heinrich Hopff.)
588	20655	Germany ...	*Manufacture of Artificial Threads from Cellulose Derivatives (Patent Specification* 367,274). (I.G. Farbenindustrie Gesellschaft.)
589	20656	Germany ...	*Manufacture of Sheets and Other Articles from Cellulose Derivatives (Patent Specification* 372,637). (I.G. Farbenindustrie Gesellschaft.)
590	20657	Germany ...	*Manufacture of Polymeric Compounds (Patent Specification* 510,168). (I.G. Farbenindustrie Gesellschaft.)

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591	20659	G.B.	*Plastic Material and Method of Making* (*Patent Specification* 2,070,331). (Elmer R. Derby.)
592	20660	U.S.A. ...	*Process for the Preparation of Condensation Products* (*Patent Specification* 1,990,399). (Maurice Bellow.)
593	20661	——	*Porous or Spongy, Elastic and Flexible Products and Methods of Their Manufacture* (*Spongy, Polyvinyl Plastics*) (*Patent Specification* 769,011). (M. Georges Emmanual Zelger.)
594	20662	Germany ...	*A Process for Stabilising Vinylester Monomers of Organic Acids* (*Patent Specification* 503,919). (I.G. Farbenindustrie.)
595	20663	Germany ...	*Manufacture of Highly Viscous Solutions from Polyvinyl Alcohols* (*Patent Specification* 356,408). (I.G. Farbenindustrie.)
596	20721	G.B.	*Identifying Plastics.* (Plastics, Vol. 8, No. 82, March, 1944, pp. 98-99.)
597	20722	G.B.	*The Welding of Thermoplastic Materials by Means of Radio Frequency Currents (with Comprehensive Bibliography, including Patents).* (H. P. Zade, Plastics, Vol. 8, No. 82, March, 1944, pp. 100-109.)
598	20723	G.B.	*Metallizing Plastics* (*Metal Coatings Electrically Sputtered or Thermally Evaporated in Vacuum*). (E. E. Halls, Plastics, Vol. 8, No. 82, March, 1944, pp. 112-123.)
599	20724	G.B.	*Coal in Relation to Plastics.* (H. R. Fleck, Plastics, Vol. 8, No. 82, March, 1944, pp. 124-127.)
600	20725	G.B.	*Designing for Plastic Moulding.* (W. M. Holliday, Plastics, Vol. 8, No. 82, March, 1944, pp. 129-140.)
601	20726	G.B.	*Resinoids and Other Plastics as Film Formers. XXIII—Coating Media on Vinyl Acetate and Polyvinyl Alcohol Base.* (B. J. Brajnikoff, Plastics, Vol. 8, No. 82, March, 1944, pp. 141-146.)
602	20727	G.B.	*Brushes with Plastic Bristles* (*Abstract*). (From Wärme, Vol. 65, p. 266.) (Braihan, Plastics, Vol. 8, No. 82, March, 1944, p. 111.)
603	20862	U.S.A. ...	*Post-War Development in Synthetics.* (J. E. Good, Industrial and Engineering Chemistry (News Edition), Vol. 22, No. 2, 25/1/44, pp. 94-96.)
604	20952	G.B.	*Thermoplastic Cables — Scope and Methods of Handling.* (Electrical Review, Vol. 134, No. 3,456, 18/2/44, pp. 225-227.)
			Rubber (Nat. and Syn.).
605	20079	G.B.	*Comparison of the Behaviour of Rubberlike Materials Under Constant Stress and Constant Strain Conditions.* (G. W. S. Blair and B. C. Veinoglou, Nature, Vol. 153, No. 3,875, 5/2/44, pp. 163-166.)
606	20157	U.S.A. ...	*South American Natural Rubber.* (Inter. Avia., Nos. 898-899, 11/12/43, p. 29.)
607	20492	U.S.A. ...	*Types of Synthetic Rubber.* (Mechanical Engineering, Vol. 66, No. 2, February, 1944, pp. 138-139.)

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608	20616	U.S.A. ...	*Evaluation of Processes for the Production of Rubber.* (Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, pp. 383-386.)
609	20891	G.B.	*Competitive Rubber Plants.* (G. Martin, Nature, Vol. 153, No. 3,877, February, 1944, pp. 212-213.)
610	21097	U.S.A. ...	*Rubber Substitute Found in Vinyl-Type Plastic (Developed by Glenn Martin).* (Aero Digest, Vol. 43, No. 4, Oct., 1943, pp. 214, 237.)
			Wood and Plywood.
611	20080	G.B.	*Plywood Adhesives and Linings (Indian Forest Research Institute Leaflets).* (Nature, Vol. 153, No. 3,875, 5/2/44, p. 173.)
612	20297	Germany ...	*New Knowledge on Wood Impregnation (Abstract).* (Chemische Technik, Vol. 15, No. 5, 1942, pp. 56-57.) (A. Howak, Civil Engineering, Vol. 39, No. 451, Jan., 1944, p. 180.)
613	20305	U.S.S.R. ...	*Consumption of Raw Material in the Production of Plywood.* (Moiseenko, Timber Industry, No. 9, Sept., 1943, pp. 15-17.)
614	20541	G.B.	*Wood as an Engineering Material.* (Engineer, Vol. 177, No. 4,599, 3/3/44, pp. 170-171.)
615	20719	G.B.	*Wood Dust in Moulding Sand—its Use as a Substitute for Coal Dust.* (Automobile Engineer, Vol. 34, No. 447, March, 1944, p. 128.)
616	20817	G.B.	*The Fireproofing of Wood.* (N. C. Jones, Chemistry and Industry, No. 11, 11/3/44, pp. 98-99.)
617	21065	G.B.	*Plywood Plate Girders for Buildings.* (Mechanical World, Vol. 115, No. 2,981, 18/2/44, p. 179.)
			Glass, Silver.
618	20059	G.B.	*The Effect of Shape on the Thermal Endurance of Glass Rods.* (J. B. Murgatroyd, Philosophical Magazine, Vol. 35, No. 240, Jan., 1944, pp. 17-29.)
619	20349	G.B.	*Glass Gauges.* (L. F. Gardiner, Machinery, Vol. 64, No. 1,633, 10/2/44, p. 151.)
620	20415	U.S.A. ...	*New Glass Fibres Available.* (Aero Digest, Vol. 43, No. 6, December, 1943, p. 240.)
621	20559	G.B.	*Solubility of Silver in Mercury.* (Nature, Vol. 153, No. 3,878, 26/2/44, p. 259.)
622	20627	U.S.A. ...	*A New Chemical Method of Reducing the Reflectance of Glass.* (F. H. Nicoll, Journal of the Franklin Institute, Vol. 233, No. 6, June, 1943, p. 602.)
623	20752	Germany ...	*Foam Glass as a Thermal Insulator.* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, p. 795.)
624	20815	U.S.A. ...	*Glass Overcoats for Protecting Storage Batteries Against Low Temperatures.* (Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, p. 72.)
625	20842	G.B.	*List of References on Glass Gauges, March, 1944.* (R.T.P.3, Bibliography No. 102.)
626	20846	U.S.S.R. ...	*Simplest Inorganic Glasses on a Calcium Nitrate Base.* (A. G. Bergman, Reports of the Academy of Sciences, Vol. 38, No. 9, 1943, pp. 320-322.)

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627	20878	G.B.	...	*New Types of Optical Glass.* (W. M. Hampton and others, Nature, Vol. 153, No. 3,879, 4/3/44, p. 283.)
628	20991	G.B.	...	*Thickness of Silver-Brazed Joints.* (Machinery, Vol. 64, No. 1,638, 2/3/44, p. 247.)

General Properties, including Corrosion.

629	19589	U.S.A.	...	*A Principle of Maximum Plastic Resistance (Discussion).* (Journal of Applied Mechanics, Vol. 10, December, 1943, pp. A237-A239.)
630	20203	U.S.A.	...	*Metal Developments in the U.S.A. (Chicago War Conference Display).* (H. Chase, Aviation, Vol. 42, No. 12, Dec., 1943, pp. 194, 316-317.)
631	20231	G.B.	...	*Grid Support Wires of High Strength and Conductivity (Properties of Mallory 3M Wire by Comparison with Deoxidised Copper and Pure Nickel Annealed at 900-950°C.)* (L. B. Hunt, Electronic Engineering, Vol. 16, No. 192, February, 1944, pp. 388-389.)
632	20595	U.S.A.	...	*Metals and the War.* (C. Williams, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 67-72.)
633	20596	U.S.A.	...	*Metals in Post-War America.* (E. E. Thum, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 73-77, 126.)
634	20738	U.S.A.	...	*High Strength Casting Alloy with Natural Re-aging Properties.* (H. Brown, Preprints of the Institute of the Aeronautical Sciences, 25/1/44, pp. 1-13.)
635	20786	G.B.	...	*Atmospheric Corrosion.* (A. J. Brandram, Mechanical World, Vol. 115, No. 2,982, 25/2/44, p. 218.)
636	20856	U.S.S.R.	...	*New Conception of the Term "Hardness."* (M. I. Koifman, Reports of the Academy of Sciences, Vol. 30 (New Series), No. 9, 1941, pp. 830-831.)

Welding.

B. Fabrication.

637	20054	U.S.A.	...	*Under-Water Arc Welding.* (A. J. Hipperson, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 766-771.)
638	20105	France	...	*Combination of Flat and Corrugated Sheet by Spot Welding (Ply Metal).* (Inter. Avia., Nos. 894-895, 18/11/43, p. 14.)
639	20260	G.B.	...	*Instructional Films (How to Machine, Rivet and Weld Aluminium).* (Aircraft Production, Vol. 6, No. 65, March, 1944, p. 121.)
640	20303	U.S.S.R.	...	*Automatic Welders for Welding Under Flux.* (Dyatlov, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, pp. 47-53.)
641	20481	G.B.	...	*The Spot-Welding Properties of Rust-Proofed Mild Steel Sheet.* (W. S. Simmie and A. J. Hipperson, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 503-507.)
642	20482	G.B.	...	*The Spot Welding of Magnesium Base Alloys.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 508-511.)

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643	20483	G.B.	*New Ideas in Welding (Review of Recent Patents).* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 512-513.)
644	20484	G.B.	*Welding in the Maintenance of Road Passenger Vehicles.* (N. H. Charles and G. Deacon, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 515-518.)
645	20821	G.B.	*Welding Light Metals.* (Metal Industry, Vol. 64, No. 10, 10/3/44, p. 152.)
646	20910	G.B.	*American Spot and Seam Welding Practice.* (Engineering, Vol. 157, No. 4,078, 10/3/44, pp. 196-197.)
647	20993	G.B.	*Arc Welding Repair of Worm Wheels.* (Mechanical World, Vol. 115, No. 2,983, 3/3/44, pp. 229-231.)
648	20999	G.B.	*An Adaptable Welding Fixture.* (A. Keye, Mechanical World, Vol. 115, No. 2,983, 3/3/44, pp. 244-245.)
649	21015	Germany ...	*Butt Welding of Steel Tubes.* (A.E.G., Stahl und Eisen, Vol. 64, No. 7.)
			Soldering, Brazing.
650	20426	G.B.	*Aluminium Bronze Solder.* (Metal Industry, Vol. 44, No. 9, 3/3/44, p. 137.)
651	20478	G.B.	*Soldering Metal to Glass.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 494.)
652	20479	G.B.	*Hard Soldering Aluminium.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 495.)
653	20634	U.S.A. ...	*Lead-Base Soldered Joints in Copper Tubing.* (Journal of the Franklin Institute, Vol. 234, No. 2, August, 1942, pp. 164-165.)
654	20818	G.B.	*Aluminium Brazing Sheet—A Consideration of the Fundamentals of Metal Flow.* (M. A. Miller, Metal Industry, Vol. 64, No. 10, 10/3/44, pp. 146-149.)
			Joining, Jointing.
655	20088	G.B.	*The Jointing of Metal.* (J. Aherne-Heron and L. N. Smith, Aircraft Engineering, Vol. 16, No. 180, Feb., 1944, pp. 59-60.)
656	20424	Germany ...	*Joining Zinc Alloys (Recommended German Welding Technique).* (A. G. Dornach, Metal Industry, Vol. 44, No. 9, 3/3/44, p. 135.)
			Cutting, Boring, Stretch Forming.
657	20351	G.B.	*Fine Boring Practice.* (P. Grodzinski, Machinery, Vol. 64, No. 1,635, 10/2/44, p. 155.)
658	20384	G.B.	*Flame Cutting of Metals by Enriched Coal Gas.* (Engineering, 25/2/44, p. 148.)
659	20398	U.S.A. ...	*Stretch-Forming of Sheet Metal.* (T. S. Clark and C. L. Fenn, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 154-158, 250, 264-266.)
			Plating, Spraying.
660	20091	G.B.	*Determination of the Thickness of Tin Coatings on Metals (Tin Research Institute Publication, No. 115).* (Engineering, Vol. 157, No. 4,075, 18/2/44, p. 128.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
661	20304	U.S.S.R.	...	*Practical Hints for Nitriding.* (Yakhonin, Mechanical Engineering News, Nos. 9-10, Sept.-Oct., 1943, p. 66.)
662	20419	U.S.A.	...	*Problems in Spray Painting.* (P. J. Wilson, Aero Digest, Vol. 43, No. 6, December, 1943, pp. 253-254, 264.)
663	20427	G.B.	...	*Development of Phosphate Coatings—Applications of Parkerizing and Bonderizing.* (R. C. Davies and S. J. Scouse, Metal Industry, Vol. 44, No. 9, 3/3/44, pp. 138-140.)
664	20467	G.B.	...	*Electro-Tinning and Electro-Galvanizing of Strip Steel.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 439.)
665	20480	G.B.	...	*The Adherence of Sheet Steel Vitreous Enamels.* (W. A. Deringer, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 497-500.)
666	20652	U.S.A.	...	*Coating Composition (Patent Specification* 2,114,877). (Ralph W. Hall.)
667	20714	G.B.	...	*Rust-Proofing—Notes on the Use of Non-Metallic Phosphate Coatings (Parkerizing).* (Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 109-110.)
668	20757	Germany	...	*Phosphatizing in the Cold (Anti-Rust).* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, p. 794.)
669	20819	G.B.	...	*Cadmium and Zinc Coatings—Revised American Specifications and Operating Conditions.* (Metal Industry, Vol. 64, No. 10, 10/3/44, p. 149.)
670	20851	U.S.S.R.	...	*Chrome Plating of Steel and Iron Ware in the Gaseous Phase.* (N. S. Gorbunov and F. S. Baryshanskaya, Reports of the Academy of Sciences, Vol. 37 (New Series), No. 9, 1942, pp. 277-280.)
671	20865	U.S.A.	...	*Protective Coating for Ceramics.* (Industrial and Engineering Chemistry (News Edition), Vol. 22, No. 2, 25/1/44, p. 134.)
672	20954	G.B.	...	*Insulating Varnishes—A Guide to Selection and Application.* (R. McGill, Electrical Review, Vol. 134, No. 3,456, 2/2/44, pp. 238-240.)
673	20955	G.B.	...	*Protective Phosphate Coatings.* (Electrical Review, Vol. 134, No. 3,456, 18/2/44, p. 240.)
674	20978	G.B.	...	*Protection by Paints Richly Pigmented with Zinc Dust.* (J. E. O. Mayne and U. R. Evans, Chemistry and Industry, No. 12, March, 1944, pp. 109-110.)
675	21031	G.B.	...	*Design in Relation to Electrodeposition (Abstract).* (J. S. Jones and P. M. Walker, Machinery, Vol. 64, No. 1,636, 17/2/44, p. 186.)

Milling, Grinding, Turning.

676	20353	G.B.	...	*Mixing Tank for Grinding Compounds.* (M. J. Thomas, Machinery, Vol. 64, No. 1,635, 10/2/44, p. 159.)
677	20995	G.B.	...	*High Speed Milling (Woodworking Methods Applies to Light Alloys).* (P. Dubosclard, Mechanical World, Vol. 115, No. 2,983, 3/3/44, pp. 237-239.)

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678	21024	G.B. ...	... *Turning and Other Operations on Die Castings.* (Machinery, Vol. 64, No. 1,637, February, 1944, pp. 217-219.)
			Drawing, Rolling, Pressing.
679	20310	U.S.S.R.	... *Cold Rolling Stresses.* (Turnovsky, Steel, Vol. 3, Nos. 5-6, 1943, pp. 32-35.)
680	20470	Germany	... *Time Study in Rolling Mills.* (K. Wuhrmann, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 444.)
			Moulding, Casting.
681	20136	G.B. ...	... *The Maintenance of Die Casting Dies.* (H. K. Barton, Machinery, Vol. 63, No. 1,629, 30/12/43, pp. 750-752.)
682	20262	G.B. ...	... *A Dual Purpose Air Press (for Compression Moulding and Light Metal Pressing).* (Aircraft Production, Vol. 6, No. 65, March, 1944, p. 124.)
683	20352	G.B. ...	... *Injection Moulding and Tools for Plastics.* (T. L. Daniels, Machinery, Vol. 64, No. 1,635, 10/2/44, pp. 157-159.)
684	20658	G.B. ...	... *Improvements in or Relating to Moulding Compositions (Patent Specification 410,770).* (Shawinigan Chemicals, Ltd.)
685	20784	G.B. ...	... *Gravity Die Casting in Non-Ferrous Alloys.* (E. A. H. Carlton, Mechanical World, Vol. 115, No. 2,982, 25/2/44, pp. 219-222.)
686	21025	G.B. ...	... *Aluminium Pressure Die Castings.* (Machinery, Vol. 64, No. 1,637, February, 1944, p. 219.)
			Heat Treatment.
687	20094	G.B. ...	... *The Heating of Open-Hearth Furnaces with Mixed Gases.* (R. W. Evans, Engineering, Vol. 157, No. 4,075, 18/2/44, p. 136.)
688	20383	G.B. ...	... *The Heating of Open-Hearth Furnaces with Mixed Gases—II.* (R. W. Evans, Engineering, Vol. 157, No. 4,076, 25/2/44, pp. 145-146.)
689	20477	G.B. ...	... *Pressure Quenching of Rolled Steel.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, p. 492.)
690	20548	G.B. ...	... *The Heating of Open-Hearth Furnaces with Mixed Gases—II.* (R. W. Evans, Engineering, Vol. 156, No. 4,077, 3/3/44, p. 176.)
691	20601	U.S.A.	... *Continuous Cooling Transformation Diagram (from Modified End-Quench Method).* (C. A. Liedholm, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 94-99.)
692	20606	U.S.A.	... *Practical Application of Induction Heating Principles (Data Sheet).* (Metal Progress, Vol. 45, No. 1, January, 1944, p. 147.)
693	20618	U.S.A.	... *Hydrogen for High Frequency Cooling (Abstract).* (Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, p. 411.)
694	20633	U.S.A.	... *The Precipitation Hardening of Metals.* (P. D. Merion, Journal of the Franklin Institute, Vol. 234, No. 2, August, 1942, pp. 137-146.)

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695	20637	Germany	...	*Hot Air Cupola Furnace for the Production of Malleable Cast Iron* (600°C. *Superheat*). (R. Piwowarsky, Stahl und Eisen, Vol. 64, No. 4, January, 1944, pp. 65-66.)
696	20783	G.B.	...	*Heat Treatment of Magnesium Castings.* (Mechanical World, Vol. 115, No. 2,982, 25/2/44, p. 215.)
697	20967	U.S.A.	...	*Ratio and Multiple Fuel Controls in the Steel Industry* (*Accurate Control of the Furnace Atmosphere*). (H. Ziebolz, A.S.M.E. Preprints, Spring Meeting, 3-5/5/44, 13 pp.)
698	20994	G.B.	...	*The Quenching of Gears for Heat Treatment.* (Mechanical World, Vol. 115, No. 2,983, 3/3/44, pp. 231-233.)
699	21012	Germany	...	*The Influence of C Content on the Hot Zincing of Sheet Steel.* (W. Pungel, Stahl und Eisen, Vol. 64, No. 7, 17/2/44, pp. 101-105.)
700	21013	Germany	...	*The Effect of Tempering Temperature on the Strength Characteristics of Heat Treatable Steels in the Absence of Molybdenum.* (A. Krisch, Stahl und Eisen, Vol. 64, No. 7, 2/2/44, pp. 105-110.)
701	21016	Germany	...	*Electric Heat Treatment Furnace for Saw Blades.* (Gas und Elektro Wärme, Vol. 1,943, No. 4, July, 1943, pp. 74-77.)
702	21068	G.B.	...	*Small Electric Furnace for Non-Ferrous Alloys.* (Mechanical World, Vol. 115, No. 2,981, 18/2/44, p. 189.)
				Surface Finish.
703	20473	G.B.	...	*Metal Finishing. Part IV—Overcoming the Problems of Degreasing and Cleaning.* (H. Silman, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 467-473.)
704	20717	G.B.	...	*Surface Finish—Review of the Various Processes, including Measurement—II.* (W. E. R. Clay, Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 119-125.)
				Powder Metallurgy.
705	20814	U.S.A.	...	*Recent Developments in Powder Metallurgy.* (Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, p. 64.)
706	20873	G.B.	...	*Powder Metallurgy* (*with Discussion*). (W. D. Jones, The Institution of Production Engineer, Vol. 23, No. 2, Feb., 1944, pp. 35-58.)
				Machines and Tools.
707	20131	G.B.	...	*How to Get the Most Out of Carbide Tools.* (Machinery, Vol. 63, No. 1,629, 30/12/43, p. 735.)
708	20134	G.B.	...	*Countersinking Cutter for Blind Holes.* (Machinery, Vol. 63, No. 1,629, 30/12/43, p. 743.)
709	20135	G.B.	...	*Spindle Bearings for Machine Tools.* (F. Koenigsberger, Machinery, Vol. 63, No. 1,629, 30/12/43, p. 744.)

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710	20265	G.B.	...	*Novel Bending Tool.* (Aircraft Production, Vol. 6, No. 65, March, 1944, p. 136.)
711	20471	G.B.	...	*A Brief Survey of Press Tool Cost Estimating.* (K. E. Harper, Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 447-448, 454.)
712	20486	U.S.A.	...	*Increasing Tool Life by Better Tool Finishing.* (V. H. Ericson, Mechanical Engineering, Vol. 66, No. 2, Feb., 1944, pp. 107-119.)
713	20491	U.S.A.	...	*Tool Life Tests—Proposed Standard of Tool Life Tests for Evaluating the Machinability of Single-Point Tools, Cutting Fluids, or Materials Cut.* (G. W. Boston, Mechanical Engineering, Vol. 66, No. 2, February, 1944, pp. 130-132.)
714	20550	G.B.	...	*Developments in Carbide-Tipped Tools.* (Engineering, Vol. 156, No. 4,077, 3/3/44, p. 180.)
715	20600	U.S.A.	...	*Tools for High Speed Milling and for Shell Forging.* (N. G. Meagley, Metal Progress, Vol. 45, No. 1, January, 1944, pp. 91-93.)
716	20638	Germany	...	*Development in Multiple Wire Drawing Machines (American and German Designs).* (H. Mueke, Stahl und Eisen, Vol. 64, No. 5, February, 1944, pp. 69-76.)
717	20751	Germany	...	*Infinitely Variable Gears for Machine Tools (Mechanical and Electric Drives).* (H. Schopke, Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, pp. 773-780.)
718	20968	U.S.A.	...	*Nitriding of Hardened High Speed Steel Tools.* (J. G. Morrison, A.S.M.E. Preprints, Spring Meeting, 3-5/4/44, 11 pp.)
719	20969	U.S.A.	...	*Performance of Cutting Tools Chromium Plated by Lundbye Process.* (A. Lundbye, A.S.M.E. Preprints, Spring Meeting, 3-5/4/44, 11 pp.)
720	20988	G.B.	...	*Tool Design and Improvisation.* (Machinery, Vol. 64, No. 1,638, 2/3/44, p. 237.)
721	20996	G.B.	...	*Handling Methods for the Direct Feeding of Machine Tools (Use of Electric Hoist).* (From Z.V.D.I., Vol. 86, 1942, p. 632.) (Mechanical World, Vol. 115, No. 2,983, 3/3/44, p. 246.)
722	21028	G.B.	...	*Special Chuck for Internal Grinding Machines.* (E. Boneham, Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 181-182.)
723	21030	G.B.	...	*Tipping a Worn Broach with Carbide.* (Machinery, Vol. 64, No. 1,636, 17/2/44, p. 183.)

C. Inspection

(Chemical, X-Ray, Quality Control).

724	20008	G.B.	...	*The Action of Ultra-Violet Light on Liquid Benzene.* (C. B. Allsopp and B. Szigeti, J. of the Soc. of Chem. Ind., Vol. 63, No. 1, Jan., 1944, pp. 30-31.)
725	20045	U.S.A.	...	*Some Experiments in Stress Relieving Castings and Welded Structures by Vibration.* (R. T. McGoldrick and H. E. Saunders, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 589-609.)

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726	20047	U.S.A. ...	*Speeding up the Chemical Analysis of Miscellaneous Ferrous Alloys by Means of the Spectrograph.* (W. H. Hammond and F. Fong, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 620-627.)
727	20132	G.B.	*Practical Application of Quality Control.* (W. A. Bennet and J. W. Rodgers, Machinery, Vol. 63, No. 1,629, 30/12/43, pp. 737-740.)
728	20133	G.B.	*A Simple Method of Control for Fine Finished Surfaces (Using a Microscope to Observe the Interference Fringes Produced by Monochromatic Light).* (Machinery, Vol. 63, No. 1,629, 30/12/43, pp. 741-743.)
729	20148	Canada ...	*Fluorescent Penetrant Inspection for Surface Defects.* (F. S. Catlin, Commercial Aviation, Vol. 5, No. 11, Nov., 1943, pp. 87-88.)
730	20179	Germany ...	*The Effect of Annealing Temperature and Period on the Previously Cold Worked Metal (Crystal Recuperation and Recrystallisation Phenomena).* (A. Pemp and G. Niebeh, Zeitschrift fur Metallkunde, Vol. 35, No. 5, May, 1943, pp. 111-117.)
731	20180	Germany ...	*Superstructure Markings on Al.-Mn. and Al.-Mg.-Si. Sheet Metal After Anodic Treatment.* (H. Rohrig and E. Kopernick, Zeitschrift fur Metallkunde, Vol. 35, No. 5, May, 1943, pp. 117-120.)
732	20181	Germany ...	*The Systematics of Metals and Alloys in Melted State (Presence or Absence of Intermetallic Combinations and Transitive Phenomena).* (F. Sanerwald, Zeitschrift fur Metallkunde, Vol. 35, No. 5, May, 1943, pp. 105-111.)
733	20252	G.B.	*The Determination of Stresses in Drop Stamps—No. III.* (A. Blainey, Engineer, Vol. 177, No. 4,598, 25/2/44, p. 144.)
734	20434	U.S.A. ...	*Spectrographic Determination of Nickel and Chromium in Stainless Steel.* (J. H. Coulliette, Ind. and Eng. Chem. (Analyt. Edit.), Vol. 15, No. 12, 15/12/43, pp. 732-734.)
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741	20569	Japan ...	*Investigations on Natural and Artificial Snow Crystals (Review).* (V. Nakaya, Flugsport, Vol. 35, No. 14, 20/10/43, p. 220.)
742	20590	G.B.	*Scope and Limitations of Infra-Red Measurements in Chemistry.* (H. W. Thompson, Nature, Vol. 153, No. 3,877, February, 1944, pp. 209-211.)
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755	20354	G.B.	*Electronic Tube Flaw Detector.* (Machinery, Vol. 64, No. 1,635, 10/2/44, p. 159.)
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784	20838	U.S.A. ...	*Bibliography of N.A.C.A. Technical Notes* (*Feb.*, 1944). (R.T.P.3, Bibliography No. 98.)
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819	20268	G.B.	*Magnesium Casting Production (for Pratt and Whitney Engine Components).* (Aircraft Production Vol. 6, No. 65, March, 1944, pp. 145-148.)
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828	20543	G.B.	...	*Features of German Aircraft Affecting Production and Maintenance.* (Engineering, Vol. 156, No. 4,077, 3/3/44, pp. 161-163, 170.)
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838	21066	G.B.	...	*Engine Features for Economical Production (Methods to Facilitate Batch Production of Medium-Sized Engines).* (R. E. Strub, Mechanical World, Vol. 115, No. 2,981, 18/2/44, pp. 180-183, 191.)
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845	20130	G.B. ...	...	*Mass Production of High Explosive Shells.* (Machinery, Vol. 63, No. 1,629, 30/12/43, pp. 729-734.)
846	20138	Canada	...	*Degreasing for Greater Efficiency in Production.* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, p. 120.)
847	20346	G.B. ...	...	*The Production of the Magazine for the Sten Gun.* (Machinery, Vol. 64, No. 1,635, 10/2/44, pp. 141-146.)
848	20347	G.B. ...	...	*Welding in Shipbuilding.* (Machinery, Vol. 64, No. 1,635, 10/2/44, p. 148.)
849	20350	G.B. ...	...	*Designing Castings for Production.* (Machinery, Vol. 64, No. 1,635, 10/2/44, p. 152-153.)
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851	20378	G.B. ...	...	*Some Principles of Cold-Working—Their Application to the Manufacture of Artillery Cartridge Brass.* (D. H. Lloyd, Metal Industry, Vol. 64, No. 8, 25/2/44, pp. 117-119.)
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855	20502	G.B. ...	...	*Planned Production Gauging (Frame System Speeds Inspection Reduces Fatigue and Protects Gauges.* (Production and Engineering Bulletin, Vol. 3, No. 14, January, 1944, pp. 33-37.)

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857	20534	U.S.A. ...	*Navy Uses Microfilming to Aid Repair (Reproduction of Engineering Drawings).* (Aviation Maintenance, Vol. 1, No. 2, Jan., 1944, pp. 70-71.)
858	20712	G.B.	*Production Milling.* (Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 102-106.)
859	20779	G.B.	*Recent Welding Developments in British Merchant Shipbuilding.* (R. B. Shepheard, Mechanical World, Vol. 115, No. 2,982, 25/2/44, pp. 203-206.)
860	20864	U.S.A. ...	*Plastic Tyres Announced by Goodyear (Plioflex).* (Industrial and Engineering Chemistry (News Edition), Vol. 22, No. 2, 25/1/44, p. 133.)
861	20939	Germany ...	*Armament Production (Photographs of Anti-Tank Guns, Tiger Tanks, etc.).* (Motor Schau, Vol. 7, Nos. 10, 11, 12, October, November, December, 1943, pp. 209-213.)
862	20984	G.B.	*Sten Gun Manufacture.* (Machinery, Vol. 64, No. 1,638, 2/3/44, pp. 225-229.)
863	20985	G.B.	*Production of Mountings for 90 mm. A.A. Guns.* (Machinery, Vol. 64, No. 1,638, 2/3/44, pp. 231-235.)
864	21017	Germany ...	*Flame Hardening in the Motor Car and Engine Industry.* (Gas und Elektro Wärme, Vol. 1,943, No. 4, July, 1943, pp. 84-86.)
865	21018	Germany ...	*The Rochling "O-Ce" Hardening Process for Gear Wheels containing .8 per cent. C.* (Gas und Elektro Wärme, Vol. 1,943, No. 4, July, 1943, p. 86.)
866	21020	G.B.	*Methods in the Production of the Sten Gun Magazine.* (Machinery, Vol. 64, No. 1,637, February, 1944, pp. 197-202.)
867	21022	G.B.	*Operations on 90 mm. A.A. Gun Mountings (Cutting, Welding and Other Processes).* (Machinery, Vol. 64, No. 1,637, February, 1944, pp. 205-209.)
868	21026	G.B.	*The Production of the Sten Gun (Press Tool Operations on the Magazine).* (Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 169-173.)
869	21027	G.B.	*Manufacture of Steel Cartridge Cases.* (Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 175-180.)
870	21034	G.B.	*Post-War Prospects of the Machine Tool Industry.* (R. E. Flanders, Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 191-192.)
871	21053	G.B.	*Improvements in the Manufacture of Piston and Like Packing Rings (Powder Metallurgy Process).* (British Piston Ring Co., British Patent Specification No. 551,232.)
872	21054	G.B.	*Improvement in the Manufacture of Piston and Like Packing Rings (Powder Metallurgy Process).* (British Piston Ring Co., British Patent Specification No. 552,532.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
873	21055	G.B.	... ...	*Improvements in and in the Manufacture of Metal Inserts (Powder Metallurgy Process).* (British Piston Ring Co., British Patent Specification No. 558,182.)
874	21056	G.B.	... ...	*Improvements in or Relating to the Manufacture of Metal Articles or Masses (Piston Rings, Valve Guides, Valve Seat Inserts, etc., by the Powder Metallurgy Process).* (British Patent Specification No. 538,227.)
875	21057	G.B.	... ...	*Improvements in and in the Manufacture of Piston and Like Packing Rings (Powder Metallurgy Process).* (British Piston Ring Co., British Patent Specification No. 558,408.)
				Plant Equipment.
876	20143	Canada	...	*Unique Levelling Table for Making Propellers (Photo).* (Commercial Aviation, Vol. 5, No. 11, Nov., 1943, p. 144.)
877	20267	G.B.	... ...	*Workshop Micrometers (Suggestions to Reduce Rejected Work).* (Aircraft Production, Vol. 6, No. 65, March, 1944, p. 142.)
878	20355	U.S.A.	...	*Drilling Jig for Small Handwheels.* (W. Danks, Machinist, Vol. 87, No. 141, 29/1/44, p. 256E.)
879	20474	G.B.	... ...	*Developments in Hydro-Pneumatic Squeeze Riveting Equipment.* (Sheet Metal Industries, Vol. 19, No. 203, March, 1944, pp. 475-476.)
880	20501	G.B.	... ...	*Quality Control on Hand-Operated Machines.* (Production and Engineering Bulletin, Vol. 3, No. 14, January, 1944, pp. 11, 19-20.)
881	20504	G.B.	... ...	*Shock-Absorbing Riveting Dolly.* (Production and Engineering Bulletin, Vol. 3, No. 14, January, 1944, p. 47.)
882	20544	G.B.	... ...	*Pneumatic Riveter for Aircraft Construction.* (Engineering, Vol. 156, No. 4,077, 3/3/44, p. 166.)
883	20546	G.B.	... ...	*The Engineering Outlook. VIII—Machine Tools.* (Engineering, Vol. 156, No. 4,077, 3/3/44, p. 174.)
884	20565	Germany	...	*Device for Checking Sub-Contractors' Aircraft Jigs.* (Junkers, Flugsport, Vol. 35, No. 14, 20/10/43, p. 207.)
885	20793	G.B.	... ...	*Immersion Heaters—Application to Industrial Processes.* (R. W. J. Cockram, Electrical Review, Vol. 134, No. 3,457, 25/2/44, pp. 263-264.)
886	20805	U.S.A.	...	*Bendix-Westinghouse Organised to Produce Variety of Pneumatic Power Equipment (Routing Equipment, etc.).* (J. Geschelin, Automotive and Aviation Industries, Vol. 89, No. 1, 1/12/43, pp. 18-21, 62-64.)
887	20866	U.S.A.	...	*Tin Electroplating Process (Du Pont Halogen Tin Process).* (Industrial and Engineer Chemistry (News Edition), Vol. 22, No. 2, 25/1/44, p. 134.)
888	21021	G.B.	... ...	*The Jig and Tool Efficiency Engineer.* (Machinery, Vol. 64, No. 1,637, February, 1944, p. 203.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
889	21032	G.B.	*Truing and Readjustment of Grinding Wheels (German Patent).* (Machinery, Vol. 64, No. 1,636, 17/2/44, p. 187.)
890	21033	G.B.	*Consolidated Pneumatic Tool 2,044 One-Shot Riveter.* (Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 189-190.)
891	21035	G.B.	*R.C.A. Electronic Rivet Detonator.* (Machinery, Vol. 64, No. 1,636, 17/2/44, p. 194.)
892	21036	G.B.	*Geometrical v. Arithmetical Progression (forSpeeds of Work in Machine Tool Design).* (Machinery, Vol. 64, No. 1,636, 17/2/44, pp. 185-186.)
893	21067	G.B.	*Metrovick "Lo-Volt" Miniature Electric Soldering Iron.* (Mechanical World, Vol. 115, No. 2,981, 18/2/44, pp. 186-187.)
894	21092	U.S.A. ...	*Vertical Lofting Board Saves Space and Speeds Work.* (Aero Digest, Vol. 43, No. 4, October, 1943, p. 194.)
895	21100	U.S.A. ...	*Redesign of Arc Welded Jigs Reduces Machining.* (H. V. Wenger, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 228-230, 240.)

Workers' Welfare.

896	20255	G.B.	*The Fencing of Dangerous Parts of Machinery.* (H. A. Hepburn, Engineer, Vol. 177, No. 4,598, 25/2/44, pp. 149-151.)
897	20448	G.B.	*Protective Creams for Hands of Industrial Workers.* (Aeroplane, Vol. 66, No. 1,710, 3/3/44, p. 235.)
898	20488	U.S.A. ...	*Wage Incentives Under Wartime Conditions.* (J. W. Nickerson, Vol. 66, Mechanical Engineering, No. 2, February, 1944, pp. 115-118, 120.)
899	20499	G.B.	*Employing Limbless Workers.* (Production and Engineering Bulletin, Vol. 3, No. 14, January, 1944, p. 2-11.)
900	20635	Germany ...	*Psychological Tests in the Factory—Selection of Duties and Promotions (with Special Reference to the Training of Foremen).* (E. Bornomann, Stahl und Eisen, Vol. 64, No. 3, January, 1944, p. 37.)
901	20640	Germany ...	*Physiological Evaluation of Manual Labour (Differentiation Between Heavy and Light Work, Fatigue Reference Standards, etc.).* (G. Lehmann, Stahl und Eisen, Vol. 64, No. 6, 10/2/44, pp. 85-90.)
902	21088	U.S.A. ...	*Eliminating Test Stand Noise.* (P. J. Sturm, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 172, 236.)

TRANSPORT

(MILITARY VEHICLES, CARS, LOCOMOTIVES).

903	20711	G.B.	*Daimler Armoured Car (Mark I).* (Automobile Engineer, Vol. 34, No. 447, March, 1944, pp. 87-101.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
904	20755	Germany ...	*Self-Locking Differential Drives for Motor Transport (Thrust Limited by Slip of Both Wheels Instead of only One for Normal Drive).* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, p. 790.)
905	20760	Germany ...	*Motor Transport Over Snow—Modifications of Caterpillar Chains.* (Z.V.D.I., Vol. 87, Nos. 49-50, 11/12/43, p. 793.)
906	20774	U.S.A. ...	*Smoke Generators for Identifying Movement of Military Vehicles to the Air Observer.* (Inter. Avia., Nos. 886-887, 27/9/43, p. 29.)
907	20810	U.S.A. ...	*Morris Armoured Car with Frameless Chassis.* (M. W. Bourdon, Automotive and Aviation Industries, Vol. 89, No. 11, 1/12/43, pp. 33, 77.)
908	20825	G.B.	*Plastic Four-Wheeled Passenger Van.* (Engineer, Vol. 177, No. 4,600, 10/3/44, pp. 188-189.)
909	20829	G.B.	*Rapid Repair of Locomotives.* (Engineer, Vol. 177, No. 4,600, 10/3/44, pp. 197-198.)
910	20844	G.B.	*Motor Traffic in France.* (Petroleum Times, Vol. 48, No. 1,216, 4/3/44, p. 145.)
911	20942	Germany ...	*Mercedes-Benz Charcoal Gas Generators for Transport Vehicles.* (Motor Schau., Vol. 7, Nos. 10, 11, 12, Oct., Nov., Dec., 1943, pp. 229-231.)
912	20943	Germany ...	*Progress in Gas Generators of Swiss Design.* (W. Trachsel, Motor Schau, Vol. 7, Nos. 10, 11, 12, Oct., Nov., Dec., 1943, pp. 232-238.)

WIRELESS AND ELECTRICITY.

Radio and Telecommunication.

913	20206	Germany ...	*A Precision Wave Meter for the 14cm. Wave Length Range.* (A. Weissfloch, E.T.Z., Vol. 64, Nos. 39-40, 7/10/43, p. 539.)
914	20226	G.B.	*Aerial Characteristics. VI—Thin Cylindrical Aerials (Data Sheets).* (Electronic Engineering, Vol. 16, No. 192, February, 1944, pp. 373-376.)
915	20324	Spain ...	*Radiolocation by Night.* (Anon., Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 291-292.)
916	20392	G.B.	*Radio Technology (Book Review).* (B. F. Weller, Nature, Vol. 153, No. 3,876, 12/2/44, p. 180.)
917	20516	G.B.	*Inaugural Address (Development of Telecommunications and the Need for International Regulation and Standardization).* (Sir A. Stanley Angwin, Journal of the Inst. of Electrical Engineers, Vol. 91, No. 37, January, 1944, pp. 15-20.)
918	20520	——	*Wireless Developments (Chairman's Address).* (T. E. Goldup, Journal of the Inst. of Electrical Engineers, Vol. 91, No. 37, January, 1944, pp. 39-48.)
919	20880	G.B.	*Enemy Airborne Radio Equipment.* (Nature, Vol. 153, No. 3,879, 4/3/44, pp. 209-211.)
920	20883	U.S.A. ...	*Theoretical Limitation to Transconductance in Certain Types of Vacuum Tubes.* (J. R. Pierce, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 657-663.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
921	20884	U.S.A. ...	*Neutralization of Screen-Grid Tubes to improve the Stability of Intermediate-Frequency Amplifiers.* (C. A. Hultberg, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 663-665.)
922	20885	U.S.A. ...	*The Principle of Reciprocity in Antenna Theory.* (M. S. Neiman, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 666-671.)
923	20886	U.S.A. ...	*Antenna Arrays Around Cylinders.* (P. S. Carter, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 671-693.)
924	20887	U.S.A. ...	*The Radiation Field of a Symmetrical Centre-Driven Antenna of Finite Cross Section.* (C. W. Harrison and R. King, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 693-697.)
925	20896	G.B.	*Recording of High Speed Transients.* (H. Moss, Electronic Engineering, Vol. 16, No. 193, March, 1944, p. 411.)
926	20897	G.B.	*Tracking in Superheterodyne Receivers—Part I.* (S. W. Amos, Electronic Engineering, Vol. 16, No. 193, March, 1944, pp. 412-413, 422-423.)
927	20974	G.B.	*Royal Signals Mobile Wireless Station.* (Engineer, Vol. 177, No. 4,601, March, 1944, pp. 251-256.)
928	21075	Canada ...	*Radio Range Monitor (Guards Airlines Approach to Salt Lake City).* (Canadian Aviation, Vol. 17, No. 1, January, 1944, p. 108.)
			Electricity (General).
929	20009	G.B.	*The Measurement of the Dielectric Constant.* (P. H. Amphlett, J. of the Soc. of Chem. Ind., Vol. 63, No. 1, Jan., 1944, pp. 31-32.)
930	20037	U.S.A. ...	*Resonant Electrical Control Systems.* (D. W. Moore, Journal of the Aeronautical Sciences, Vol. 10, No. 8, Oct., 1943, pp. 285-288, 321.)
931	20046	U.S.A. ...	*Shipboard Power Circuit Relaying.* (B. Shipley, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 610-629.)
932	20048	U.S.A. ...	*Voltage Drop Calculations for Navy Standard Cables (Preparation of Charts).* (H. Schaevitz, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 628-647.)
933	20062	G.B.	*Modifications of Appleton's Method of Measuring the Mutual Conductance of a Valve.* (L. F. Bates and W. F. Lovering, Philosophical Magazine, Vol. 35, No. 240, Jan., 1944, pp. 64-72.)
934	20081	G.B.	*Locating Buried Cables Electrically.* (Nature, Vol. 153, No. 3,875, 5/2/44, pp. 173-174.)
935	20096	G.B.	*The Work of the Electrical Research Association.* (Engineering, Vol. 157, No. 4,075, 18/2/44, pp. 137-138.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
936	20204	Germany ...	*The Electrical Properties of Lacquered Wire for Localisation of Faults, Adhesion Under Tension, Insulation Resistance, Dielectric Loss).* (W. Helzel, E.T.Z., Vol. 64, Nos. 39-40, 7/10/43, pp. 529-532.)
937	20223	G.B.	*Variable Frequency Resistance Capacity Oscillators.* (J. A. B. Davidson, Electrical Engineering, Vol. 16, No. 192, Feb., 1944, pp. 361-364.)
938	20230	G.B.	*Dust Cored Coils (Correspondence).* (E. R. Friesländer and V. G. Welsby, Electronic Engineering, Vol. 16, No. 192, February, 1944, pp. 388-389.)
939	20306	U.S.S.R. ...	*The Use of Liquid Rheostats for Controlling Centrifugal Machinery.* (Korsak, Electrical Power Stations, Vol. 14, No. 9, pp. 4-5.)
940	20307	U.S.S.R. ...	*The Efficiency Loss of Cationic Filters.* (Electrical Power Stations, Vol. 14, No. 9, p. 6.)
941	20308	U.S.S.R. ...	*Forming and Discharging Stationary Storage Batteries without Resistances.* (Bonchkovsky, Electrical Power Stations, Vol. 14, No. 9, p. 15.)
942	20309	U.S.S.R. ...	*The Measurement of Unbalanced Currents by the Asynchronous Potential Method.* (Elkind, Electrical Power Stations, Vol. 14, No. 9, p. 16.)
943	20312	U.S.S.R. ...	*Compound Excitation of Synchronous Generators.* (Zhdanov, Electrical Trades News, Vol. 14, No. 9, Sept., 1943, pp. 1-4.)
944	20313	U.S.S.R. ...	*The Steady State and Stability of Compound Synchronous Generators.* (Zukernik, Electrical Trades News, Vol. 14, No. 9, Sept., 1943, pp. 5-10.)
945	20314	U.S.S.R. ...	*Voltage Stabilization of Electric Generators.* (Meyerov, Electrical Trades News, Vol. 14, No. 9, Sept., 1943, pp. 11-13.)
946	20390	G.B.	*Conductor Sagging in Overhead Lines.* (Nature, Vol. 153, No. 3,876, 12/2/44, p. 192.)
947	20517	G.B.	*Electrical Installations — The Present and the Future.* (A. G. Ramsey, Journal of the Inst. of Electrical Engineers, Vol. 91, No. 37, January, 1944, pp. 21-27.)
948	20519	G.B.	*Technical Developments in the Transmission Field (Gas in Cables; Vacuum Tube; Synthetics) (Chairman's Address).* (T. R. Scott, Journal of the Inst. of Electrical Engineers, Vol. 91, No. 37, January, 1944, pp. 33-38.)
949	20592	G.B.	*Relationship Between Dielectric Constant of Liquids and Solids and Dipole Moments.* (S. K. K. Jatkar, Nature, Vol. 153, No. 3,877, February, 1944, p. 222.)
950	20624	U.S.A. ...	*Electrode Shaping to Establish a Uniform Electric Field Along High Voltage Resistors.* (P. Shallcross, Journal of the Franklin Institute, Vol. 233, No. 5, May, 1942, pp. 471-484.)
951	20791	G.B.	*Resistance of Conduit Joints.* (Electrician, Vol. 132, No. 3,429, 18/2/44, pp. 139-140.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
952	20794	G.B.	... ...	*Pressure Switches for Controlling Electrically Driven Air Compressors.* (Electrical Review, Vol. 134, No. 3,457, 25/2/44, p. 268.)
953	20894	G.B.	... ...	*X-Rays in Electrical Engineering.* (L. Mullins, Electronic Engineering, Vol. 16, No. 193, March, 1944, pp. 405-407.)
954	20951	G.B.	... ...	*Electricity in Ships—Some Disadvantages of A.C.* (Electrical Review, Vol. 134, No. 3,456, 18/2/44, p. 223.)
				Electronics.
955	20205	Germany	...	*Photocells for High Frequency Modulated Light* (10^7 *cycles/sec.*). (M. P. Grivet, E.T.Z., Vol. 64, Nos. 39-40, 7/10/43, pp. 538-539.)
956	20224	G.B.	... ...	*Laminated Wood as an Insulator.* (A. E. L. Jervis, Electronic Engineering, Vol. 16, No. 192, Feb., 1944, pp. 365-368.)
957	20225	——	... ...	*The Recording of High Speed Transient Phenomena by the Hot Cathode, Glass Bulb, Cathode-Ray Oscillograph.* (W. Nethercot, Electronic Engineering, Vol. 16, No. 192, Feb., 1944, pp. 369-371.)
958	20227	G.B.	... ...	*Some Unusual Applications of the Cathode Ray Oscillograph.* (G. M. Patchett, Electronic Engineering, Vol. 16, No. 192, February, 1944, pp. 378-380.)
959	20228	G.B.	... ...	*High Frequency Oscillations from Thyratrons.* (Electronic Engineering, Vol. 16, No. 192, February, 1944, p. 380.)
960	20229	G.B.	... ...	*High Frequency Therapy. Part VI—Output Circuit Therapy and Measurement.* (W. D. Oliphant, Electronic Engineering, Vol. 16, No. 192, Feb., 1944, pp. 382-386.)
961	20882	U.S.A.	...	*Analysis and Characteristics of Vacuum Tube Thyratron Phase Control Circuit.* (S. C. Coroniti, Procs. of the Institute of Radio Engineers, Vol. 31, No. 12, December, 1943, pp. 653-656.)
962	20895	G.B.	... ...	*Pulse Generation (Application to Control of Thyratron Circuits, Television, etc.).* (J. M. A. Lenihan, Electronic Engineering, Vol. 16, No. 193, March, 1944, pp. 408-410.)
963	20900	G.B.	... ...	*High Frequency Therapy—Part VII.* (W. D. Oliphant, Electronic Engineering, Vol. 16, No. 193, March, 1944, pp. 426-430.)
964	20901	G.B.	... ...	*Electronic Oxide Finishes for Aluminium.* (Electronic Engineering, Vol. 16, No. 193, March, 1944, p. 431.)
965	20902	G.B.	... ...	*Laminated Wood as an Insulator (Corrections).* (A. E. L. Jervis, Electronic Engineering, Vol. 16, No. 193, March, 1944, p. 431.)
966	20903	G.B.	... ...	*Industrial Electronic Heating (Abstract).* (J. P. Jordan, Electronic Engineering, Vol. 16, No. 193, March, 1944, p. 436.)
967	20904	G.B.	... ...	*Electronic Stabiliser for Calibrating Voltage.* (Electronic Engineering, Vol. 16, No. 193, March, 1944, p. 438.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Magnetism.
968	20063	U.S.S.R.	...	*Theory of the Coastal Refraction of Electromagnetic Waves.* (G. A. Grünberg, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, pp. 185-209.)
969	20078	G.B.	...	*"Magnetic" Current.* (J. T. Kendall, Nature, Vol. 153, No. 3,875, 5/2/44, pp. 157-158.)
970	20804	G.B.	...	*Lifting Magnet for Reclamation Work.* (Electrical Times, Vol. 105, No. 2,732, 2/3/44, p. 265.)
971	20859	U.S.S.R.	...	*The Magnetic Spectrum at Ultra Low Frequencies.* (S. S. Lavrehtiev, Reports of the Academy of Sciences, Vol. 38 (New Series), No. 8, 1943, pp. 262-265.)
972	20899	G.B.	...	*Ehrenhaft's Magnetic Current.* (Electronic Engineering, Vol. 16, No. 193, March, 1944, pp. 424, 433.)
				SOUND AND LIGHT.
				Sound Emission.
973	20068	U.S.S.R.	...	*Emission of Sound by a Moving Source (Abstract).* (D. I. Blochintzev, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, p. 230.)
				Light Radiation.
974	20129	U.S.A.	...	*Black Body Radiation.* (F. Benford, Journal of the American Society of Naval Engineers, Vol. 55, No. 4, November, 1943, pp. 718-738.)
975	20552	G.B.	...	*The Fundamental Colour Sensations in Man's Colour Sense.* (G. F. Gothlin, Nature, Vol. 153, No. 3,878, 26/2/44, pp. 235-236.)
976	20789	G.B.	...	*Design and Maintenance of Fluorescent Lighting Installations.* (J. N. Aldington, Electrical Times, Vol. 105, No. 2,731, 24/2/44, pp. 222-225.)
977	20933	G.B.	...	*Binoculars' Focussing of a Repeated Pattern (Stereoscopic Discrimination and Changes of Conversion).* (N. Henderson, Nature, Vol. 152, No. 3,868, 18/12/43, p. 726.)
978	20956	G.B.	...	*Design and Maintenance of Fluorescent Lighting Installations—Part I.* (J. H. Aldington, Electrical Times, Vol. 105, No. 2,730, 17/2/44, pp. 192-196.)
979	20986	G.B.	...	*Coloured Fluorescent Light to Detect Flaws.* (Machinery, Vol. 64, No. 1,638, 2/3/44, p. 233.)
				PHOTOGRAPHY.
980	20247	G.B.	...	*Flashlight Bombing Pictures.* (Aeroplane, Vol. 66, No. 1,709, 25/2/44, pp. 202-203.)
981	20461	G.B.	...	*R.A.F. Photographic School.* (Aeronautics, Vol. 10, No. 1, Feb., 1944, p. 75.)
982	20555	G.B.	...	*Photographic Photometry.* (Nature, Vol. 153, No. 3,878, 26/2/44, pp. 241-243.)
983	20629	U.S.A.	...	*Differentiation with the Cinema Integraph.* (C. L. Pekeris and W. T. White, Journal of Franklin Institute, Vol. 234, No. 1, July, 1942, pp. 17-73.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
984	20679	Switzerland ...	*Trimetrogon System of Camera Installation.* (Inter. Avia., No. 900, 24/12/43, pp. 1, 15-16.)
985	21085	U.S.A. ...	*Perspective Drawings by Photographing Sectional Views.* (G. J. Hood, Aero Digest, Vol. 43, No. 4, October, 1943, pp. 150-151, 194.)

METEOROLOGY.

986	20367	U.S.A. ...	*Look to Weather Elements for Successful Flight (Study of Turbulence, Icing, etc.).* (E. J. Minser, Air Transport, Vol. 1, No. 2, Oct., 1943, pp. 32-37.)
987	20450	G.B.	*Ferrying Weather.* (Aeronautics, Vol. 10, No. 1, Feb., 1944, pp. 38-46.)
988	20623	U.S.A. ...	*Historical Note on the Deflecting Influence of the Rotation of the Earth (Dynamical Meteorology).* (E. W. Woolard, Journal of the Franklin Institute, Vol. 235, No. 5, May, 1942, pp. 465-470.)
989	20642	Germany ...	*Dangers of the Atmosphere (Translation of Abstract).* (T. O. Eriksson, Flyging, Vol. 20, No. 15; Abstracted in Luftwissen, Vol. 10, No. 4, April, 1943, p. 22.)

PHYSIOLOGY AND AVIATION MEDICINE.

990	20003	U.S.A. ...	*Medical Problems in the R.C.A.F.* (J. W. Tice, Aviation Medicine, Vol. 14, No. 1, February, 1943, pp. 4-9.)
991	20004	U.S.A. ...	*Development of All-Purpose Single Aperture Goggles (Dark Adaptor and Aviation Types).* (L. O. Carson, Aviation Medicine, Vol. 14, No. 1, February, 1943, pp. 10-14.)
992	20005	U.S.A. ...	*The Army Air Force Medical Service.* (D. N. W. Grant, Aviation Medicine, Vol. 14, No. 1, Feb., 1943, pp. 15-22.)
993	20006	U.S.A. ...	*Effects of Total Ventilation by Obstructing Blood Vessels and by Muscular Effort.* (J. R. Delucchi, Aviation Medicine, Vol. 14, No. 1, February, 1943, pp. 23-27.)
994	20069	U.S.A. ...	*A Pursuitmeter with an Application to Aviation Medicine.* (H. Lamport and others, Journal of Aviation Medicine, Vol. 14, No. 6, December, 1943, pp. 336-345.)
995	20070	U.S.A. ...	*The Effects of Pressure on the Carotid Sinus at Various Altitudes (Case Reports).* (L. Palitz and others, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 346-355.)
996	20071	U.S.A. ...	*Flicker Fusion Tests as a Measure of Fatigue in Aviators.* (A. Graybiel and others, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 356-359.)
997	20072	U.S.A. ...	*Report of a Case of Severe Anoxic Anoxia with Recovery.* (R. L. Ward and C. C. Olson, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 360-365.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
998	20073	U.S.A. ...	*Air Sickness in Bomber Crews.* (D. M. Green, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 366-372.)
999	20074	U.S.A. ...	*Aeroneuroses in a Bomb Training Unit.* (D. M. Green, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 373-377.)
1000	20075	U.S.A. ...	*Medical Problems of the Civil Air Patrol, Office of Civilian Defence.* (J. G. Stubenbord, Journal of Aviation Medicine, Vol. 14, No. 6, Dec., 1943, pp. 378-382.)
1001	20207	G.B.	*Penicillin.* (E. Chain and H. W. Florey, Endeavour, Vol. 3, No. 9, January, 1944, pp. 3-14.)
1002	20321	Spain ...	*What a Doctor is Able and Should Do in Aircraft Accidents.* (E. de E. Lainer, Revista de Aeronautica, Vol. 75, No. 23, Oct., 1942, pp. 273-276.)
1003	20395	U.S.A. ...	*How Aviation Medicine is Reducing Hazards of Flying.* (Aero Digest, Vol. 43, No. 6, December, 1943, pp. 116-119, 124, 234-237, 284-286.)
1004	20505	G.B.	*Myocardial Damage Resulting from High Oxygen Tension (Abstract).* (J. Aviation Med., Vol. 13, No. 4, Dec., 1942, pp. 267-271.) (J. Kaunitz, Bulletin of War Medicine, Vol. 4, No. 4, p. 244.)
1005	20506	G.B.	*Specifications for Dark-Adaptation Tests.* (Brit. Med. J., 22/5/43, pp. 632-633.) (K. J. W. Craik, Bulletin of War Medicine, Vol. 4, No. 4, Dec., 1943, pp. 244-245.)
1006	20507	G.B.	*A Critique of the Bishop Harman Test for Night Vision.* (Brit. Med. J., 22/5/43, pp. 633-635.) (J. Yudkin, Bulletin of War Medicine, Vol. 4, No. 4, Dec., 1943, p. 245.)
1007	20508	G.B.	*Paratrooper Fracture.* (Arch. Surgery Vol. 46, No. 5, May, 1943, pp. 780-783.) (W. J. Tobin, Bulletin of War Medicine, Vol. 4, No. 4, Dec., 1943, p. 211.)
1008	20509	U.S.A. ...	*Air Sickness in a Primary Air Force Training Detachment (Abstract).* (J. Aviation Med., Vol. 13, No. 4, Dec., 1942, pp. 272-276.) (J. H. Rubin, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, pp. 241-242.)
1009	20510	U.S.A. ...	*Selection of Military Aircraft Pilots. Our Viewpoints About Professional Selection and Psychological Examination (Abstract).* (J. Aviation Med., Vol. 13, No. 4, Dec., 1942, pp. 234-244.) (Bulletin of War Medicine, Vol. 4, No. 4, Dec., 1943, p. 242.)
1010	20511	Germany ...	*Medical Question of Stratosphere Flights (Abstract).* (Luftfahrtmedizin, Vol. 7, No. 4, Dec., 1942, p. 390.) (Kilches, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, p. 242.)
1011	20512	Germany ...	*The Electroencephalogram After Interruption of Oxygen Supply at Various Altitudes (Abstract).* (Luftfahrtmedizin, Vol. 7, No. 4, 30/1/43 pp. 305-318.) (A. Beigel and others, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, p. 242.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
1012	20513	Germany ...	*Adaptation to Anoxia Shown in the Electro-encephalogram (Abstract).* (Luftfahrtmedizin, Vol. 7, No. 4, 30/1/43, pp. 319-334.) (A. Beigel and others, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, p. 243.)
1013	20514	U.S.A. ...	*The Administration of Helium and Oxygen Mixtures in the Treatment of Disabling Ear Symptoms Caused by Changes in Atmospheric Pressure (Abstract).* (U.S. Nav. Med. Bull., Vol. 41, No. 2, March, 1943, pp. 378-385.) (I. J. Thorne, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, pp. 243-244.)
1014	20515	U.S.A. ...	*Responses in Size, Output and Efficiency of the Human Heart to Acute Alteration in the Composition of Inspired Air (Abstract).* (Amer. J. Physiolo., Vol. 638, No. 5, 1/4/43, pp. 763-771.) (A. Keys and others, Bulletin of War Medicine, Vol. 4, No. 4, December, 1943, p. 244.)
1015	20558	G.B.	*Total Colour Blindness of Hysterical Origin.* (R. W. Pickford, Nature, Vol. 153, No. 3,878, 26/2/44, pp. 256-257.)
1016	20803	G.B.	*The Status of the Auditory Mechanism in the Pilot of Extensive Experience. An Evaluation of the Factors Contributing to the State of Hearing Diminution in the Experienced Pilot, and a Correlation of Them into Otological Entities.* (Laryngoscope, Vol. 53, No. 6, June, 1943, pp. 419-430.) (C. Firestone, Bulletin of War Medicine, Vol. 4, No. 6, February, 1944, pp. 367-368.)

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1017	20058	G.B.	*The New Algebras and Their Significance for Physics and Philosophy.* (E. T. Whittaker, Philosophical Magazine, Vol. 35, No. 240, Jan., 1944, pp. 1-15.)
1018	20064	U.S.S.R. ...	*On the Rigidity of Liquids (Abstract).* (M. C. Kornfeld, Journal of Physics, U.S.S.R., Vol. 6, No. 5, 1942, p. 227.)
1019	20359	G.B.	*The Effect of Changes in a Torsionally Vibrating System on the Natural Frequencies of the System (Preprint).* (W. A. Tuplin, Philosophical Magazne, Ser. 7, Vol. 21, June, 1936, p. 1097.)
1020	20360	G.B.	*Torsional Vibration in Certain Mechanical Systems (Preprint).* (W. A. Tuplin, Philosophical Magazine, Ser. 7, Vol. 24, Nov., 1938, p. 729.)
1021	20608	U.S.A. ...	*The Radio Spectrum, Ether Spectrum, Audible Spectrum, Photoelectric Spectrum (Data Sheet).* (Metal Progress, Vol. 45, No. 1, January, 1944, p. 177.)
1022	20612	U.S.A. ...	*Some Refinements in Methods of Graphical Integration.* (L. H. Donnell, Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, pp. 331-348.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
1023	20614	U.S.A. ...	*Some Improvements in Practical Fourier Analysis and Their Application to X-Ray Scatter from Liquids.* (G. C. Danielson and C. Larczos, Journal of the Franklin Institute, Vol. 233, No. 4, April, 1942, pp. 365-380.)
1024	20620	U.S.A. ...	*Some Improvements in Practical Fourier Analysis and Their Application to X-Ray Scatter from Liquids—II.* (G. C. Danielson and C. Larczos, Journal of the Franklin Institute, Vol. 233, No. 5, May, 1942, pp. 435-452.)
1025	20621	U.S.A. ...	*The Nature of Static Friction.* (W. Claypoole and D. B. Cook, Journal of the Franklin Institute, Vol. 233, No. 5, May, 1942, pp. 453-463.)
1026	20849	U.S.S.R. ...	*Maintained Oscillations of Automatically Controlled Systems.* (B. V. Bulgakov, Reports of the Academy of Sciences, Vol. 37 (New Series), 1942, pp. 250-253.)

July, 1944

Abstracts from the Scientific and Technical Press

(No. 124. June, 1944)

AND

Titles and References of Articles and Papers Selected from Publications (Reviewed by R.T.P.3)

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ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

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NOTE.—As far as possible, the country of origin quoted in the items refers to the original source.

The Effect of Rounding-off an Originally Sharp Leading Edge on the Resistance of Wings. (E. Wolff. Ing. Arch., Vol. 4, No. 6, Dec., 1933, pp. 521/544.) (124/1 Germany.)

The author considers the case of symmetrical lenticular profiles with sharp leading and trailing edges (produced by the intersection of two equal circles). Such profiles form the basis of the Kármán-Trefftz Series and formulæ for the pressure distribution in potential flow are available. The same method of conformal transformation can be applied to the case when the leading edge (originally sharp) is replaced by a third circle, thus converting the profile section into an area bounded by three circles. The requisite formulæ are worked out in detail for this more general case and the theoretical pressure distributions are plotted for various values of the nose radius. The curves refer to a lenticular profile of 120 mm. chord and an originally sharp edge angle of 15° at an incidence of 3.9°; and four value of the nose radius ($a = .4$, .6, .8 and 1 mm. respectively). These theoretical pressure distributions were compared with experimental values obtained with a model of 300 mm. span fitted with end plates at a wind speed of 24 m./sec.

Speaking generally, calculated and theoretical values are in good agreement with the exception of regions in close proximity to the leading and trailing edges. The maximum theoretical suction pressure with a sharp leading edge is $-\infty$ which is reduced to -4.8 times the dynamic head q when $a = .4$.

The corresponding measured values are approximately -1.2 times the dynamic head and this ratio remains practically unchanged over the whole range examined. Although an absolutely sharp leading edge cannot be tested (" a " always >0) it is reasonable to assume that the maximum practical suction would be equal to $-1.2q$ in this case also. Evidently, the very large depressions indicated by theory are avoided in practice by the formation of a vortex at the sharp leading edge. This vortex acts as a roller bearing, the fluid only joining the aerofoil contour at some distance behind the leading edge. The maximum depression recorded is therefore that due to the vortex and for the same wing incidence does not change appreciably with rounding-off of leading edge. The leading edge vortex will ultimately disappear when the nose curvature becomes sufficiently large (standard aerofoil shape). The flow now follows the contour and the theoretical and practical values of the maximum depression are in close agreement. At the trailing edge, however, theoretical and actual pressures never agree, the separation of the boundary layer always reducing the recorded pressure below the dynamic head value. The theoretical pressure distribution corresponding to potential flow will always produce zero drag. The actual pressure distribution will, however, generally produce a component opposing motion (form drag) to which must be added the viscous drag always present in order to obtain the total resistance. The form drag resulting from the actual pressure distribution is divided by the author into three components, giving rise to three resistance coefficients, c_{w1}, c_{w2} and c_{wa}, of which the first two arise at the leading edge whilst c_{wa} represents the pressure loss at the trailing edge (boundary layer separation). c_{w1} is caused by the deficiency in suction pressure below theoretical value in close proximity to the nose. It depends on incidence and sharpness of nose. The following are representative values:—

		100 c_{w1}		
α (degrees)	$a=0$	$a=.05$	$a=.1$	$a=1$ mm.
0	0	0	0	0
3·9	2.8	1.1	1.05	.8
5·5	5.0	2.2	2.15	1.7

As already explained, although the case $a=0$ cannot be tested experimentally, it is assumed that the practical pressure distribution in this limiting case will not differ from that observed at a small finite value of " a."

It will be noted that even a very small rounding-off of the leasing edge produces a considerable drop in c_{w1} and that a subsequent increase in the radius of curvature of the nose produces only a relatively small further drop. All technically " sharp " edges have thus a very much smaller c_{w1} value than corresponds to the ideal limit. Whilst c_{w1} is a proper drag coefficient due to a deficiency in the suction pressure over a certain zone, the second coefficient c_{w2} considered by the author covers a further region near the nose where the measured pressure exceeds the ideal and has a component opposing the direction of incident flow. c_{w2} thus gives rise to a negative drag. The absolute values are, however, small and amount to about 10 per cent. of c_{w1}. Representative values are given below:—

		100 c_{w2}		
a	$a=0$	$a=.05$	$a=.10$	$a=1$ mm.
0	0	0	0	0
3·9	.28	.27	.26	.12
5·5	·54	·53	·52	.29

It will be noted that c_{w2} varies with " a " in a regular manner and the sudden drop for small values of " a " which is a characteristic of c_{w1} does not occur. The last component of the form drag considered by the author is located at the trailing edge and due to separation of the boundary layer. This separation depends mainly on the circulation, *i.e.*, lift of the profile, and since this lift is practically unaffected by changes in the nose curvature " a," we find that the

trailing edge resistance coefficient c_{wa} is a function of the incidence only. This is shown in the following table:—

a	$100\ c_{wa}$
0	.08
3·9	·23
5·5	·37

The components c_{w1}, c_{w2} and c_{wa} so far considered neglect viscous friction. This friction can be estimated from the known velocity distribution, making use of Wieselsberger's figures for the drag of a flat plate (constant velocity). The corresponding value of the friction coefficient c_{wR} are given below:—

a	$100\ c_{wR}$
0	.6
3·9	.63
5·5	·70

In this calculation the flat plate resistance was taken at the Reynolds number corresponding to the pressure distribution tests on the model ($Re = 2 \times 10^5$).

The total profile resistance c_{wg} of the lenticular wing section is then given by

$$c_{wg} = c_{w1} - c_{w2} + c_{wa} + c_{wR},$$

and using the individual tables given above we obtain:—

	$100\ c_{wg}$			
a	$a=0$	$a=.05$	$a=.10$	$a=1$ mm.
0	·7	·7	·7	·7
3·9	3·4	1·7	1.65	1·5
5·5	5·5	2·7	2.65	2·4

These results, based on a comparison of actual and theoretical pressure distributions on a lenticular model of 120 mm. chord (fitted with end plates) were compared with direct drag measurements on a geometrically similar model of 300 mm. chord and 900 mm. span (no end plates).

The measurements were carried out for a series of nose radii ranging from 0 (technically sharp) to 1.0 mm., and the results expressed in terms of a profile drag coefficient c_{wp} after correcting for the induced drag associated with the finite span. Representative values are given below:—

	$100\ c_{wp}$			
a	$a=0$	$a=.1$	$a=.2$	$a=1$ mm.
0	·5	·5	·5	·5
3·9	1·33	1·25	1·2	1·10
5·5	2·0	1·95	1·9	1·75

(Breakdown of the lift curve occurs at 9° approx.) It will be noted that over the range $a=.1$ to $a=1$ mm. the direct drag readings are about 30-40 per cent. lower throughout than the corresponding results obtained from the pressure distribution. The variation of drag with nose radius is, however, very similar in the two cases.

The discrepancy in the absolute values of the profile drag coefficients can be largely explained by the differences in the Reynolds number of the two experiments. According to AVA (Goettingen) Series 1, p. 54 (1935), the profile drag coefficient will increase by about 25-30 per cent. as Re diminishes from 6×10^5 (the value of the balance measurement) to 2×10^5 (the value corresponding to the pressure distribution tests). The larger difference at $a=0$ can be satisfactorily explained by the impossibility of producing technically " sharp " leading edges. The two sets of experiments are thus in satisfactory agreement.

At zero incidence, the drag is almost entirely viscous and independent of the nose radius.

At finite incidence, the profile drag undergoes a marked reduction as soon as there is the smallest departure from a theoretically sharp leading edge. Any subsequent rounding-off produces only a relatively small further decrease in drag. As a result, the technically " sharp " leading edge, *e.g.*, $a = .05$ mm, already has sufficient curvature to reduce the profile drag to half the theoretical value ($a = 0$).

The finite value of the edge angle of the lenticular profile examined (15°) is also beneficial in that it inclines the pressure force forward and thus reduces the " form " drag. Whilst at zero incidence the drag coefficient of a flat plate and lenticular profile are thus practically identical (viscous drag), at finite incidence the latter will have the smaller drag coefficient.

Testing of Plastic Sheets with Infra Red Rays. (F. Steuber, Schiff & Werft, Vol. 45/25, Nos. 5/6, March, 1944, p. 68.) (Digest.) (124/2 Germany.)

If plates of Mipolam are examined by transmitted light of various wavelengths, it is found that ultra violet light as well as ultra soft X-rays are almost completely absorbed, whilst infra red illumination shows up many structural details and can thus be used to examine welds in this material.

It appears likely that this new method will prove of value not only in routine testing, but also in general research on plastic materials.

Production Applications of Flash Welding. (R. Milmoe, S.A.E. National Meeting, January, 1943.) (Preprint available.) (124/3 U.S.A.)

Flash welding is a form of butt welding in which the two parts to be joined are connected to the secondary terminals of a low voltage, high current transformer and brought into close contact. The two mating surfaces should be of the same shape and approximately of the same cross-sectional area, but apart from being reasonably flat, no special surface treatment is required. Arcing or flashing will occur when the current is switched on and the material in the contact area will melt rapidly. The work is held in a special clamp which causes the two mating parts to approach at a gradually increasing speed during this process, thus ensuing a relatively constant flashing current.

At the end of the period, the speed of approach is suddenly increased causing a large rise in the welding current to the short circuit value. During this so-called upset period, the mating parts are pressed together with considerable force (10-20,000 lb. psi of cross-section of weld), the total amount of travel being limited by stops on the clamps. The current is usually cut off in the early stages of the upset period, the weld then cooling under clamped conditions. (Clamps are water-cooled.)

If, however, very thin tubes are welded, the current must be cut off slightly before the upset operation so as to prevent overheating.

It will be noted that the flash butt welding process is characterised by a definite shortening of the mated materials which is the sum of the relative approach during the flashing and upsetting periods. In contra distinction to electric arc or gas welding no material is added during the process.

On the contrary, during the flashing material is actually burned away, whilst during the upset we have a compacting process similar to forging. This compacting is accompanied by a squeezing out of oxidised metal and other impurities at the joint which is one of the main reasons for the high quality of the resultant weld (100 per cent. joint strength).

If the final use of the parts is to be in the normalised condition or at comparatively low heat treatment (*e.g.*, up to 140,000 psi) all the components may be final machined before welding. Moreover, since the flash welding process does not result in a warped assembly and the total approach in the welding machines can be accurately controlled, the completely finished components will join up in a finished assembly having a tolerance of $\pm .01$ in.

The process is thus especially attractive for tube joints in aircraft construction.

In the case of normalised S.A.E. 4130 tubes, the weld is fully equal to the parent metal as regards static strength, tensile fatigue and tension impact.

After welding, the parts may be heat treated to any desired strength without reducing the strength of the weld area.

The production of consistently good welds depends on:—

(1) Suitable preparation of the parts before welding.

(2) Proper adjustment on welding machine and consistency in operation of automatic features of welding machine.

(3) Satisfactory inspection technique.

(1) Mating surfaces should be parallel and square, but not smoothly machined or polished. A somewhat rough surface resulting from a power saw or cut-off wheel is recommended.

Surfaces should be clean and free from scale, and this also applies to the parts held in the clamps (current lead-in).

(2) The proper machine adjustment is a matter of experience. Upset pressure and upset travel and instant of current cut-off are of special importance.

(3) The best available inspection method is the close control of the flash welding equipment and the process.

At the beginning of each new run three specimens are tested to destruction and one examined microscopically. Subsequent samples are taken after each 25th weld. No strength tolerance below the test load is permitted.

The final machine adjustments are recorded so that they are available when setting up the particular machine for subsequent lots of the same part.

The Bolometer Amplifier. (L. Merz, A.T.M., 264-2, T.27, February, 1937.) (124/4 Germany.)

The amplifier consists of a Wheatstone Bridge in which two of the resistance coils (bolometers), connected to opposite arms of the bridge, are exposed to a current of air furnished by a vibrating reed. The air issues from two narrow parallel slots in a box surrounding the reed, each air stream being directed on to one of the bolometer coils. The reed is operated by an independent electric circuit and the bridge balanced in the normal way, with zero current passing through the bridge galvanometer. The current or voltage requiring amplification is passed through a second sensitive galvanometer, the pointer of which is fitted with a vane almost bridging the gap between the two slots. A small deflection of the vane produces a considerable variation in the air stream impinging on one or other of the bolometers and thus alters their relative resistance. As a result a considerable out of balance current is recorded on the bridge galvanometer which may easily be of the order several hundred mA per mV applied to the vane galvanometer. This is considerably more than can be obtained in a single stage valve amplifier.

In order to maintain a constant amplification it is necessary to include the vane galvanometer in the bridge circuit and schemes suitable for voltage and current amplification respectively are described. This reduces the working range of the instrument somewhat, but enables the amplification to be predetermined within 1 or 2 per cent. provided that disturbance torque due to the air jets acting on the vane is sufficiently small compared with the electrical torque. This has led to special designs for the moving coil vane galvanometer so as to produce electrical torques of the order of 1-2 gcm./90°, the air jet reaction torque being kept down to about 30 mgm./90°. If such a bolometer amplifier is used as a control device, instability may result due to the relatively high time constant of the bridge (thermal lag). This difficulty can be overcome by adopting either an inductive or capacity coupling. If the latter is suitably dimensioned, the response of the bridge galvanometer can be made aperiodic. This is illustrated by means of

photographic records of the current variation following a sudden cut-off of the applied voltage.

The bolometer amplifier has so far been mainly employed for operating normal ink recorders which requires about 5 mA. It appears specially suited for recording thermo EMFs, since the minute current taken by the instrument make the record practically independent of the resistance of the leads.

The calibration is unaffected by change in atmospheric temperature or supply voltage to the bridge. In addition, mechanical vibrations have very little effect.

NOTE.—For utilisation of bolometer relays on aircraft see abstract 123/13 Fuel Flow Meter for Aircraft.

Photoelectric D.C. Amplifiers. (L. Merz, A.T.M., Z 64-3, T 167, December, 1937.) (124/5 Germany.)

In the bolometer amplifier, described in 124/4, the incoming current or voltage deflects a vane which in its turn upsets an originally balanced Wheatstone Bridge. Similar results can be obtained by replacing the bolometer coils by two photocells arranged in series to form a potential divider. The incoming current or voltage now deflects a mirror which in its original position illuminated the two photocells equally and thus resulted in zero current through the bridge galvanometer. A deflection of the mirror by less than 05° can in this way be recorded, corresponding to incoming currents of the order of 10^{-10} amp. This high sensitivity is largely due to the absence of air jet disturbances which limit the lower range of the bolometer amplifier to about 10^{-5} amp.

In order to obtain consistency in the amplification, the mirror galvanometer to which the incoming voltage or current is applied does not form an independent circuit but is interconnected with the bridge circuit in a similar manner to the vane galvanometer of the bolometer relay already described. The sensitivity of the photoelectric amplifier is very much greater than that of the bolometer type, a full deflection of its standard ink recorder (5 mA) requiring on applied voltage of only 30×10^{-6} volt.

The measurement of such small voltage requires, however, good thermal insulation of the apparatus, since a temperature difference of only 1° corresponds to a thermo EMF of 10^{-6} volt in the case of a copper manganin couple. With suitable precautions, however, the photoelectric amplifier will enable voltage of the order of 10^{-6} volt to be recorded on a standard ink recorder to an accuracy of 1 per cent. in the amplification, the steady reading being obtained within five seconds.

Electric Power for Aircraft. (W. T. Clardy, Electrical Engineering, Vol. 59, July, 1940, pp. 385/388.) (124/6 U.S.A.)

The ever-increasing size of aircraft has caused a corresponding increase in the demand for electrical power. According to the author this is best supplied by auxiliary engines driving either A.C. or D.C. generators. For heavy loads the A.C. 110 volt 400 cycle 3-phase system has received considerable attention. A 12.5 kw. generator of this type operating at 3,430 r.p.m. weighs as little as 100 lb. and is capable of standing a high overload current at low power factors.

The engine driving such an alternator will idle automatically after starting until it reaches operating temperatures.

The alternator is provided with a magnetic voltage regulator enabling operating voltage to be reached by self-excitation (residual magnetism).

The control is then taken over automatically by an electronic device which regulates the voltage in each of the three phases and also supplies the necessary field current by rectification.

Current for battery charging or operating D.C. auxiliaries is provided by a separate dry plate rectifier (14 or 28 volt). The proper balance of single-phase loads between the three phases avoids the impedence drops associated with

single-phase systems and induction motors will start up and produce rated output without the use of centrifugal switches or other control devices.

Such a motor rated at 6 h.p. (22,500 r.p.m.) will weigh only about 15 lb. In the author's opinion the system described is well suited for large aircraft with heavy motor loads.

For medium sized aircraft, with smaller motor loads, the 24 volt D.C. auxiliary power system is very attractive. A number of 5 kw. generators, 175A, 28.5V, have been designed, operating at speeds ranging from 3,000 to 6,000 r.p.m. and weighing from 40 to 70 lb. These machines are fitted with special cooling fans and will carry short time overloads of 150 per cent. normal output. Voltage regulation is mechanical, the regulating duty being distributed over 15 to 20 contacts each operating well under the sparking voltage limit. The weight of such a control is of the order of 4 lb. D.C. motors cannot be operated at the high speed of A.C. induction motors and their specific weights are therefore higher. Thus a 3/8 h.p. (25 volt D.C.) motor running at 7,500 r.p.m. will weigh about 7 lb. against 14 lb. for the 6 h.p. 3-phase motor described above. This clearly shows the advantage of the A.C. system for heavy loads.

In the discussion, the need for auxiliary power plants was questioned, it being considered more economical to divert the necessary power from the main engines. In addition such auxiliary power plants increase servicing time and form additional targets in case of military aircraft. Some doubts as to the advantages of A.C. power were also expressed. Although high speed of operation makes for low specific motor weights, lubrication at these high speeds under service conditions may not be easy. Since in any case a reduction gear must be incorporated, the viscous drag of such a gear at low temperatures may present additional difficulties, since the starting torque of induction motors is notoriously low.

Some Physical Aspects of Ionospheric and Geomagnetic Disturbances and Allied Astrophysical Problems. (M. N. Gnevyshev, Bull. Acad. Sci. U.S.S.R. Phys. Ser., Vol. 7, No. 4, 1943, pp. 134-144.) (124/7 U.S.S.R.)

Valuable data on conditions in the ionosphere have been made available by the Institute of Arctic Research of the U.S.S.R., from daily and hourly observations at Tomsk (lat. 56°), Slutsk (lat. 60°) and Tikhaya Bay, Franz Joseph Land (lat. 80°), between the year 1938 and the beginning of 1941. In conjunction with the published monthly means of diurnal observations of critical frequency and altitude of the Kennelly-Heaviside layer, made at Washington, D.C. (lat. 39°) during 1934-41, these have led to valuable conclusions on the physical nature of the ionosphere, and the propagation of radio waves, as well as in regard to general problems of geomagnetism and astrophysics.

The critical frequency—*i.e.*, the maximum frequency corresponding to the shortest wave capable of reflection from the layer at given ionic density—as a characteristic of the ionosphere, is a function of the diurnal time, season, and latitude of the place; ionic density therefore depends essentially on the sun's altitude. The average variation due to these causes is sufficiently defined by the recombination equation of ionisation, and is of importance in determining the standard conditions for the undisturbed day.

Frequently, however, the characteristics of the ionosphere, in particular the critical frequency, diverge considerably from the standard, and the conditions of the disturbed day are present. Disturbance analysis has the ultimate aim of determining and predicting the extent and nature of this diurnal disturbance.

Numerous observations prove that the variation of the critical frequency has an 11-year cycle with 27-day recurrence, indicating that this disturbance is due to solar activity. A connection between disturbances in the ionosphere and the terrestrial magnetic field has also been established. The nature of these relationships and the laws governing such disturbances are, however, still unknown.

The paper gives the results of careful analysis of the above data, summarised in the following conclusions, which are of interest, not only in the study of ionospheric disturbance, but also in regard to geomagnetic and astrophysical problems.

1. The relative 11-year rate fF_2 is the same for all latitudes.

2. The variation in the annual mean of fF_2 is due to solar activity.

3. It is possible to set up standard conditions for a normal day corresponding to the undisturbed state of the sun. Referring the value of fF_2 to 1939, the standard value is 0.6.

4. The influences of corpuscular and ultra-violet radiation can be distinguished. The first is particularly prevalent in high latitudes, causing apparent diminution of the critical frequency and interruption of radio communication by increased scattering. The second form of radiation is apparent on the illuminated side of the earth and manifested in an increase of the critical frequency with radio disturbance by increased absorption in the lower strata.

5. Geomagnetic disturbances are accompanied by a diminution of the critical frequency below fF_2, indicating their corpuscular nature.

6. Geomagnetic storms and the consequent diminution of fF_2 in high latitudes are caused by corpuscular radiation to the earth from points on the sun's surface of particularly high sunspot activity.

7. The increase of fF_2 is produced by the intensified ultra-violet radiation from active points on the sun, and manifests itself about two months after the increase in sunspot activity.

Electronic Turbo Supercharger Control System. (W. H. Gilles and H. T. Sparrow, Aero Digest, Vol. 44, No. 6, 15th March, 1944, pp. 110/116, 233.) (124/8 U.S.A.)

The supercharging system considered consists of an exhaust driven supercharger which supplies compressed air to the carburettor intake (induction pressure). The fuel mixture then enters a second supercharger driven by the engine, where the pressure is raised to the so-called manifold pressure before it passes the inlet valve. Since the engine is supposed to be fitted with a constant speed propeller, full throttle operation implies a constant relationship between induction and manifold pressures.

The turbo supercharger is controlled entirely by a bye-pass (waste gate) which enables some of the exhaust to escape to the atmosphere without passing through the turbine.

In the control system described, the bye-pass position is determined by the induction pressure and turbine r.p.m., the latter control, however, only coming into operation when the turbine tends to exceed the safe operative speed. The speed governor also incorporates a device making it responsive to turbine acceleration as well as absolute r.p.m. In this way rises in induction pressure can be anticipated and corrected with very little hunting. It is clear that a control system of this type depending on absolute induction pressure could operate by purely mechanical linkages. The device described, however, utilises an electrical linkage incorporating a valve amplifier. This renders the system specially suited for centralised control of a number of engines. The electrical linkage adopted consists of three potentiometer circuits arranged in series, each being supplied with two moving contacts. The total out of balance voltage is applied to the grid of a valve amplifier and the resulting current will turn the waste gate motor so as to either shut or open the bye-pass, depending on whether the out of balance signal corresponds to a positive or negative voltage.

In actual operation, the master control contact on potentiometer No. 1 is set at the required induction pressure, a second contact on this bridge serving for calibration purpose only.

On the second potentiometer one contact is controlled by the acceleration of the turbine wheel, whilst the other is positioned by the induction pressure aneroid.

In the last potentiometer one contact is operated by the exhaust bye-pass whilst the second is moved as soon as the safe upper speed limit of the turbine is reached.

When the bridge is balanced all the contacts are in such a position that no current flows to the electric motor incorporated in the waste gate. Any departure from this balanced position will produce such motion of the contacts that the waste gate motor will operate so that the induction pressure set on the master control is maintained automatically.

As an example of the operation of the control, a diagram showing the variation of inlet and manifold pressure with throttle position at 25,000 feet is given. For this particular installation the following full throttle values were observed:—

Engine r.p.m.—2,400.
Manifold pressure—37 in. mercury.
Induction pressure—25 in. mercury.
Turbo r.p.m.—18,000.
Waste gate position—50° open.

The throttle was suddenly closed and kept in this position for 20 seconds. At the end of this period the engine r.p.m. had recovered to 2,300 r.p.m. after a preliminary drop to 1,600 r.p.m. (constant speed propeller), whilst the manifold and induction pressures had dropped to 5 in. and 14 in. respectively. The turbine r.p.m. had dropped to 6,000 r.p.m., the waste gate being now fully closed. On suddenly opening the throttle the engine r.p.m., after a momentarily oscillation to 2,600 r.p.m., settled down to its old speed (2,300 r.p.m.) in 10 seconds.

The standard values of turbo r.p.m. (18,000) and manifold pressure (37 in.) were also regained in the same interval, the carburettor induction pressure requiring, however, 16 seconds to recover to its old value (25 in.).

Even under these severe conditions the records are remarkably free from oscillations. This shows the advantages of incorporating a turbine acceleration control together with induction rather than manifold pressure as a reference standard.

It is stated that this " electronic " control has been fitted to some American aircraft and has given satisfaction under service conditions.

Plywood Characteristics Disclosed by Vibration Tests. (A. J. Yorgiadis and J. M. Robertson, Aero Digest, Vol. 45, No. 1, April, 1944.) (124/9 U.S.A.)

The stresses induced in an elastic system do not only depend on the magnitude and frequency of the disturbing force, but also on the damping capacity and dynamic modulus of the material. In order to determine the latter factors, the authors employed the following apparatus: Two heavy masses W_1 and W_2 are attached to the ends of a cylindrical specimen of the material in question. The masses are supported on horizontal rails fixed to a heavy base, rollers being interposed to reduce friction. The system is subjected to a periodic horizontal force by means of a mechanical oscillator fitted with four rotating eccentrics, two aside, attached to mass W_2.

If

w = circular frequency of applied force
x = vibration amplitude of W_2 (in.),

then longitudinal stress amplitude on specimen is given by

$$S = \left(\frac{W_2 w^2 x}{gA}\right) psi \qquad . \quad . \quad . \quad . \quad . \quad (1)$$

where A = cross-section of specimen.

All the experiments were run under resonance conditions with $w = 48$ cycles per second.

This was accomplished by adjusting W_1 and W_2 so that the displacement x of W_2 had a phase lag of $90° \pm 5°$ with regard to the oscillator. Under these conditions πxF in. lb. of work are fed into the oscillating system per cycle, where F = amplitude of exciting force = Mrw^2 (M being total mass of the eccentrics of the oscillator and r their radius).

On the assumption that no energy is lost in the clamping or transferred to the supporting base, the whole of this input must be dissipated in the test specimen.

The damping capacity D of the latter is therefore given by

$$D = \frac{(\pi xF)}{(AL)} \text{ in. lb. per cubic in. of material} \quad . \quad . \quad . \quad (2)$$

where

A = area of cross-section
L = length between clamps.

Under these conditions the dynamic modulus of elasticity E is given by

$$E = \left(\frac{Lw^2}{Ag}\right)\left\{\frac{W_1 W_2}{(W_1 + W_2)}\right\} \quad . \quad . \quad . \quad . \quad . \quad (3)$$

The experiments were carried out on cylindrical specimen $\frac{1}{2}$ in. diameter with L varying from 4 to 8.5 inches. Preliminary investigations had shown that D was not affected by this change in L, nor was there any noticeable effect when the resonance w was changed from 48 to 68 cycles per second, or the diameter of the specimen changed from $\frac{1}{2}$ to $\frac{3}{4}$ in.

D is, however, markedly affected by the stress range S, all the materials tested giving a cubical relationship

$$D = CS^3 \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

when

C = constant for a given material
= damping coefficient.

(It is known that a similar relationship also holds for metals and plastics.)

Altogether nine different plywoods were tested, ranging in ply thickness from 1/8 to 1/48 in. prior to compressing, the moulding pressure varying from 500 to 1,500 psi. Seven of the plywoods were made of birch, the remaining two were of poplar and gum respectively. For comparison, tests were also made on solid birch specimen. The latter showed the lowest damping coefficient ($C = .15 \times 10^{-10}$) and the highest dynamic modulus ($E = 2.57 \times 10^6$) of the series. For the plywoods, C ranged from $.19$ to $.37 \times 10^{-10}$ and E from 1.51 to 2.22×10^6 respectively.

In this connection it must be remembered that for the solid specimen all the fibres were along the axis and thus in the direction of loading, whilst in the plywoods, due to the crossing of alternate layers, only half the total number of fibres were along the axis. It is interesting to note that the dynamic modulus E as defined by equation (3) and measured at a stress range S of 1,000 psi is about 30 per cent. greater than the corresponding static modulus calculated from bending tests. Utilisation of the latter constant in frequency calculations may thus lead to serious error. Due to the relatively high damping of the plywoods, the amplification factor at resonance (*i.e.*, ratio of dynamic to static stress) is very much less than in the case of a metal structure and generally speaking the wood is the safer when subjected to vibratory loads.

Measurement of Acceleration by Differentiating the Velocity. (J. Gorner, L.F.F., Vol. 16, No. 1, 10th January, 1939, p. 54.) (124/10 Germany.)

In principle an accelerometer consists of an elastically suspended mass, the relative displacement of which with respect to the carrier frame is a measure of the acceleration to which the frame is subjected at any instant provided the spring constant and damping are satisfactory. The sensitivity E of such an instrument is given by

$$E=\left(\frac{1}{w^2}\right)V$$

where

w = natural frequency of undamped mass
V = distortion factor
$=f\left(D,\frac{\Omega}{w}\right)$
D = damping
Ω = frequency impressed on frame.

The distortion factor V is practically constant and equal to unity, provided $D=\frac{1}{2}\sqrt{2}$ and Ω/w between zero and .5. Under these conditions the sensitivity $=1/w^2$ and can be made very large provided w is small enough. Since, however, freedom from distortion also implies Ω/w should not exceed .5, a high sensitivity (*i.e.*, large relative displacement of mass) can only be obtained for low values of the forcing frequency Ω. For high values of Ω it is therefore necessary to introduce a magnification factor p which can be either mechanical, optical or electrical.

Purely mechanical devices (linkage) are limited in their application, but with optical recording, p can reach 60. This can be stepped up to $p=10^4$ (carbon pile without valve amplification) and $p=10^7$ (piezo electric recording), but the corresponding electrical circuits become rather complicated. The author therefore investigated the alternative method of obtaining the acceleration from an electrical double differentiation of the motion of the elastically suspended mass. For this purpose the natural frequency of the latter is now made lower than the lowest impressed frequency. Under these conditions the mass remains practically stationary in space and the relative displacement corresponds to the motion of the frame. By attaching a magnet to the frame and a coil to the mass, the induced EMF (as recorded on a cathode ray oscillograph) is a direct measure of the frame velocity at any instant. If, however, the ordinary loop oscillograph is employed, the recorded current depends on the self-induction of the coil attached to the vibrating mass.

If

R_t = resistance of coil ($=R_s$ = resistance of oscillograph loop)
L_t = self-induction of coil

the amplitude distortion of the recorded current (*i.e.*, the velocity) is given very approximately by

$$\Delta=\tfrac{1}{4}\Omega\left(\frac{L_t}{R_t}\right)\times 100\%.$$

Hence if Δ and Ω are fixed, the time constant of the coil is also fixed and the problem resolves itself in so designing the coil that it contains the maximum amount of copper.

For a constant velocity amplitude (or induced EMF amplitude) the current response (as recorded by the loop oscillograph) will diminish with Ω and at the same time will undergo a phase displacement β. Provided, however, β increases directly as Ω, no additional distortion results from this, since on the time scale the phase displacement is the same for all frequencies. For small values of β, the required frequency relationship holds with sufficient accuracy and the oscillograph current, apart from the Δ correction, is an accurate record of the velocity.

If instead of connecting the oscillograph loop directly to the oscillating coil, a condenser of capacity C is interposed, the current record is given a lead with respect to the applied EMF. If this lead is exactly 90°, the oscillograph will now record the acceleration of the frame of the instrument, since the EMF is already proportioned to the impressed velocity. Provided $w\geqq 2\Omega_{max}$ (where Ω_{max} = maximum frequency impressed on frame of accelerometer) and the electrical

damping of the circuit ($=R/2L_t w$) is arranged to be $=\frac{1}{2}\sqrt{2}$, the amplitude of the acceleration is recorded fairly accurately over the frequency range up to $\eta=\Omega/w=.5$. In other words the distortion factor over this range is nearly constant and equal to unity.

It will be noted that the restrictions as regards frequency are exactly equivalent to those existing for the purely mechanical accelerometer considered above and the sensitivity with electrical recording varies as $1/w^2$, exactly as in the mechanical case. High sensitivity therefore again implies a small w, it being remembered that w is here the electrical frequency of the system and not the spring frequency. The latter must be considerably lower than w in order that the mass should function as a displacement indicator. A small w on the other hand limits the maximum impressed frequency Ω which the accelerometer can record without distortion. As already noted, in the mechanical case,

$$E=\frac{V}{w^2} \text{ where } V=f(\eta, D)$$

Detailed examination of the electrical accelerometer shows that in this case the sensitivity is given by

$$E=\left\{\frac{(p_1 \times p_2)}{L_t}\right\} \times \left(\frac{1}{w^2}\right)$$

where

p_1 = sensitivity of the oscillograph (cm./amp.)
p_2 = time constant of coil (volt/unit velocity)
L_t = self-induction of coil.

With a given w, the sensitivity of the electrical accelerometer thus increases by making p_1 and p_2 as large as possible and L_t small. The optimum value of p_1 is generally obtained by adjusting the oscillograph loop tension so that the frequency of this instrument is of the same order as w. p_2 increases with the strength of the magnetic field in the air gap, the diameter D of the coil and the number of turns n. Unfortunately L_t also increases as $(Dn)^2$. This difficulty can be overcome by utilising a fixed coil in series with the measuring coil and closely surrounding the latter, the windings being such that the two magnetic fields tend to neutralise each other. In this way L_t can be artificially reduced in spite of a strong field in the air gap.

If at the same time the magnetic material of the circuit is suitably chosen to possess a small magnetic conductivity, it is possible to obtain an overall sensitivity of the order of $E=10^4/w^2$ for this electrical accelerometer, which is at least as good as can be obtained with a carbon pile accelerometer. The article gives samples of the records obtained, a great advantage being the fact that velocity or acceleration records can be obtained at will by simply shorting the condenser.

It should be noted, however, that the method is only applicable if the displacement of the mass can be kept relatively small.

LIST OF SELECTED TRANSLATIONS.

No. 70.

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2232 Pfriem, H. ...	... *The Two-Dimensional, Undamped Pressure Wave of Large Amplitude.* (Forschung, Vol. 12, No. 1, Jan.-Feb., 1941, pp. 51-64.)
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2151 Shevyakov, T.	... *On the Question of Using Unshrouded Blades in Gas Turbines.* (Sov. Kotloturbo, No. 1, Jan., 1940, pp. 30-32.)
2154 ——	... *Development in Piston Rings.* (Alumininm, No. 4, April, 1943, pp. 171-174.)
2158 Hollbach, O.	... *Diesel Engines in Aircraft.* (Luftwissen, Vol. 9, No. 11, Nov., 1942, pp. 311-312.)
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2150	Willstatter, R. ... Zechmeister, L.	*On the Hydrolysis of Cellulose.* (Ber. d. deutschen Chem. Ges. Vol. 62, Section B, 1929, pp. 722-825.)
2153	Rassler-Meyer ..	*Aluminium Piston Alloy KA'* 3212-13 (*Mahle* 1244, *containing only .5 per cent. C.U. and .5 per cent. N.I.*) (Aluminium, No. 4, April, 1943, pp. 165-171.)
2175	Paklov, S. and others	*Solubility of Cellulose and its Ethers.* (J. Phys. Chem., U.S.S.R., Vol. 10, Nos. 4-5, 1937, pp. 607-619.)
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2147	Junkers	*Device for Removing Buckles out of Tube Walls.* (Flugsport, Vol. 34, No. 1, 7/1/42, p. 7.)
2159	Ulrich, M.	*Increasing the Fatigue Strength of Gear Wheels by Special Shaping, Hardening and Machining of the Tooth Base.* (Luftwissen, Vol. 9, No. 11, Nov., 1942, pp. 311-312.)
2176	——	*Iron-Silicon Alloys of High Initial Permeability obtained by Special Metallurgical Treatment.* (Archiv f. Eisen, Vol. 16, No. 9, March, 1943, pp. 363-366.)
2196	A.E.6	*Flash-Butt Welding for Tool Tips.* (Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44, p. 27.)
2227	Spiess, R.	*Flash-Butt Welded Hollow Cranks.* (Z.V.D.I., Vol. 85, Nos. 45-6, 15/11/41, pp. 867-90.)
2229	Gunther, H. ...	*The Electric Welding of Cable Strands.* (E.T.Z., Vol. 63, Nos. 49-50, Dec., 1942, pp. 587-591.)
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46	21933	G.B. ...	... *Flying the Typhoon.* (Flight, Vol. 45, No. 1,842, 13/4/44, pp. 388-390.)
47	21479	G.B. ...	... *The Handley Page Halifax III (Recognition Details).* (Aeroplane, Vol. 66, No. 1,713, 24/3/44, p. 331.)
48	21480	G.B. ...	... *The Avro Lancaster II (Recognition Details).* (Aeroplane, Vol. 66, No. 1,713, 24/3/44, p. 331.)
49	21487	G.B. ...	... *The Vickers Warwick.* (Flight, Vol. 45,No. 1,840, 30/3/44, pp. 332-333.)
50	21922	G.B. ...	... *The Barracuda Torpedo Bomber.* (Engineer, Vol. 177, No. 4,605, 14/4/44, p. 279.)
51	21934	G.B. ...	... *Hawker Tornado.* (Flight, Vol. 45, No. 1,842, 13/4/44, p. 391.)
52	21943	G.B. ...	... *Mosquito Family (Seven Versions).* (Aeroplane, Vol. 66, No. 1,716, 14/4/44, p. 402.)
53	22108	G.B. ...	... *Spitfire Twelve (Low Altitude Fighter with R.R. Griffon Engine).* (Flight, Vol. 45, No. 1,843, 20/4/44, pp. 414-415.)
54	22194	G.B. ...	... *Army Co-operation Plane—Auster IV (Detail Drawings).* (Aeroplane, Vol. 66, No. 1,717, 21/4/44, pp. 444-447.)

Military Types of Aircraft (U.S.S.R.).

55	21794	U.S.S.R.	... *Aeroplanes of the Red Air Forces (Silhouettes).* (Aeroplane, Vol. 66, No. 1,714, 31/3/44, p. 356.)

Military Types of Aircraft (U.S.A.).

56	21231	U.S.A.	... *Improvements in Lightning P. 38.* (American Aviation, Vol. 7, No. 18, 15/2/44, p. 34.)

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57	21400	Germany	... *Complete Index to American Military Aircraft, Published in "der Flieger" to Date.* (Der Flieger, Vol. 22, No. 12, Dec., 1943, pp. 354-315.)
58	21443	U.S.A.	... *Boeing B-29 Heavy Bomber.* (Inter. Avia., No. 903, 22/1/44, pp. 9-10.)
59	21444	U.S.A.	... *Boeing B-40 Escort Fighter (Version of B-17).* (Inter. Avia., No. 903, 22/1/44, p. 10.)
60	21474	U.S.A.	... *Vought Sikorsky Corsair II (with Clipped Wings) (Photo).* (Aeroplane, Vol. 66, No. 1,713, 24/3/44, p. 317.)
61	21742	U.S.A.	... *The Helldiver Meets South Pacific Battle Tests.* (Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 56-57.)
62	21951	U.S.A.	... *The Northrop P. 61 "Black Widow" (Night Fighter).* (Aeroplane, Vol. 66, No. 1,716, 14/4/44, p. 408.)
63	21956	U.S.A.	... *A-20Havoc (R.A.F. Boston)—Detailed Analysis.* (T. R. Smith, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 125-146.)
64	21970	U.S.A.	... *Bell P-39 Airacobra (Design Detail).* (Aviation, Vol. 43, No. 1, Jan., 1944, p. 199.)
65	22100	U.S.A.	... *Mustang P. 51B Fighter.* (Automotive and Aviation Industries, Vol. 30, No. 4, 15/2/44, p. 25.)
66	22102	U.S.A.	... *North American's B. 25C and D Bomber—Part II.* (N. S. Houston, Automotive and Aviation Industries, Vol. 30, No. 4, 15/2/44, pp. 34-37.)
67	22115	U.S.A.	... *The Martin Marauder (New Details).* (Aeroplane, Vol. 66, No. 1,715, 7/4/44, p. 375.)
68	22188	U.S.A.	... *Details of the Sikorsky YR-4 Two-Seat Military Helicopter.* (Aeroplane, Vol. 66, No. 1,717, 21/4/44, p. 436.)

Military Types of Aircraft (Germany).

69	21180	Germany	... *Captured Henschel 129 Fighter (Photo).* (Flight, Vol. 45, No. 1,839, 23/3/44, p. 303.)
70	21492	Germany	... *Dornier Do. 217J Fighter (Silhouette).* (Flight, Vol. 45, No. 1,840, 30/3/44, p. 344.)
71	21598	Germany	... *Siebel Si. 204, Trainer and Transport.* (Flight, Vol. 45, No. 1,841, 6/4/44, pp. 369-370.)
72	22117	Germany	... *Arado Ar. 240 Two-Motor Reconnaissance Fighter Bomber (Photo).* (Aeroplane, Vol. 66, No. 1,715, 7/4/44, p. 379.)
73	22123	Germany	... *Blohm und Voss B.V. 222 (Recognition Details).* (Aeroplane, Vol. 66, No. 1,715, 7/4/44, pp. 392-394.)
74	22124	Germany	... *The Me. 323 (Recognition Details).* (Aeroplane, Vol. 66, No. 1,715, 7/4/44, pp. 392-394.)
75	22196	Germany	... *The Heinkel III Z Glider Tug (Silhouette) (Two He. III P's Joined Together).* (Aeroplane, Vol. 66, No. 1,717, 21/4/44, p. 436.)

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			Military Types of Aircraft (Switzerland).
76	21447	Switzerland ...	*General Purpose Fighter C. 36 (Federal Aircraft Factory).* (Inter. Avia., No. 903, 22/1/44, pp. 11-12.)
			Gliders and Gliding.
77	21399	Germany ...	*Cargo Sailplanes at the Front (D.F.S. 250 and G.O. 242, Photographs).* (Der Flieger, Vol. 22, No. 12, Dec., 1943, pp. 348-351.)
78	21401	Germany ...	*French Sailplane Designs (Addendum).* (Der Flieger, Vol. 22, No. 12, Dec., 1943, pp. 356-358, 376.)
79	21728	G.B.	*What Might Have Been (Pre-War International Efforts in Promoting Sailplaning and Review of Glider Designs).* (B. S. Shenstone, Aeronautics, Vol. 10, No. 2, March, 1944, pp. 38-44.)
80	21935	G.B.	*Aircraft in Flying Altitudes (D.F.S. 230 Glider, Hadrian C.G.-4A. etc.).* (Flight, Vol. 45, No. 1,842, 13/4/44, pp. 392-393.)
81	22190	G.B.	*Tricycle Undercarriage Fitted to New Waco C.G.13A Transport Glider.* (Aeroplane, Vol. 66, No. 1,717, 21/4/44, p. 436.)
82	22272	Germany ...	*High Performance Sailplane "Kranich" Two-Seater. (R.T.P.3 Translation No. 1,191.)* (Sailplane, Vol. 12, No. 2, p. 4.) (Original Flugsport, Vol. 30, No. 19, 14/9/38, pp. 499-500.)
83	22273	G.B.	*Gliding in Czechoslovakia—II.* (A. E. Sitek, Sailplane, Vol. 12, No. 2, p. 5.)
84	22275	Germany ...	*Sailplane Autogyro (German Patent).* (*R.T.P. Translation* 1,926.) (Sailplane, Vol. 12, No. 3, p. 13.) (Original Flugsport, Vol. 35, No. 1, 6/1/43, p. 182.)
			Carriers and Fleet Air Arm.
85	21481	Switzerland ...	*American Aircraft Carriers.* (Inter. Avia., No. 903, 22/1/44, p. 17.)
86	21727	G.B.	*Torpedo Carriers for the Fleet.* (Aeronautics, Vol. 10, No. 2, March, 1944, pp. 34-37.)
87	21748	U.S.A. ...	*U.S. Navy PBN-1 Flying Boat (Improved Version of the PBY-5).* (Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 87-94.)
88	21838	U.S.A. ...	*Chance Vought F4U-1 Corsair Navy Fighter (Photo).* (American Aviation, Vol. 7, No. 19, 1/3/44, p. 19.)
			A.R.P. and A.A.
89	21453	Switzerland ...	*International Protective Markings Against Air Attack.* (Inter. Avia., No. 903, 22/1/44, pp. 20-21.)
90	21482	Switzerland ...	*German Air Raid Signals.* (Inter. Avia., No. 903, 22/1/44, p. 20.)
91	22186	G.B.	*The "Z" Rocket Projector.* (Aeroplane, Vol. 66, No. 1,717, 21/4/44, pp. 430-431.)

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			Servicing and Maintenance.
92	21745	U.S.A. ...	*Servicing Aeroplanes at Overseas Bases (Problems of Dust, Replacements, etc.).* (C. R. Paton, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 76-80, 238-244.)
93	21776	U.S.A. ...	*Design of Military Aircraft from a Maintenance Viewpoint.* (C. McMullen, Aero Digest, Vol. 44, No. 3, February, 1944, pp. 100-104.)
94	21841	U.S.A. ...	*Indoor Canopy Tester (for Parachutes).* (American Aviation, Vol. 7, No. 19, 1/3/44, p. 38.)
95	21941	G.B.	*Russian Ground Crews.* (Flight, Vol. 45, No. 1,842, 13/4/44, p. 402-403.)

AERODYNAMICS AND HYDRODYNAMICS.

General Aerodynamics.

96	22073	Germany ...	*The Superposition of Undamped Two-Dimensional Gas Waves of Large Amplitude.* (H. Pfriem, A.T.Z., Vol. 7, No. 2, March, 1942, pp. 56-65.)
97	22136	G.B.	*Estimation and Prevention of Leak Drag.* (G. N. Patterson, R. and M., No. 1,883, 29/11/38, pp. 1-37.)
98	2231	U.S.A. ...	*Aerodynamics of Cooling Ducts.* (Kennedy F. Report, S.A.E. Preprint, April 5-7, 1944, New York Meeting, 5-7/4/44, pp. 1-5.)

Aerofoil Theory.

99	21314	Germany ...	*Some Simple Formulæ of the Theory of Aerofoils (Digest).* (From Luftfahrtforschung, Vol. 19, Nos. 10-12, Jan., 1943, pp. 363-366.) (W. B. Hebbold, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 20-22.)
100	22041	U.S.A. ...	*Symmetrical Joukowsky Aerofoils in Shear Flow.* (Hsiu Shen Tsein, Quarterly of Applied Mathematics, Vol. 1, No. 2, July, 1943, pp. 130-148.)
101	22042	U.S.A. ...	*On the Discontinuous Flow Around an Aerofoil with Flap.* (P. W. Ketchum, Quarterly of Applied Mathematics, Vol. 1, No. 2, July, 1943, pp. 149-167.)
102	22056	U.S.A. ...	*An Application of the Method of the Acceleration Potential (for the Determination of the Pressure Distribution on a Symmetrical Control Surface) (Incompressible Perfect Fluid).* (J. Lehuer and C. Mark, Quarterly of Applied Mathematics, Vol. 1, No. 3, October, 1944, 250-201.)
103	22141	G.B.	*On the Power Input Required to Maintain Forced Oscillations of an Aeroplane Wing in Flight.* (R. A. Frazer, R. and M., No. 1,872, 21/7/39, pp. 1-18.)
104	22286	U.S.A. ...	*A New Derivation of Munk's Formulæ for the Lift and Moment of a Thin Aerofoil.* (W. C. Randels, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1944, pp. 88-92.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Fluid Dynamics.
105	21215	Germany	...	*The New V.D.I. Regulation for Measuring the Flow Rate of Gases or Liquids (Venturi, Nozzle and Throttle Plate Installations).* (R. Wilte, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, pp. 50-51.)
106	21343	U.S.A.	...	*Isothermal Pressure Drop for Two-Phase Two-Component Flow in a Horizontal Pipe.* (R. C. Martinelli and others, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, pp. 139-151.)
107	21667	G.B. ...	...	*Practical Alignment Chart for Fluid Flow in Pipe Lines.* (P. Meyer, Journal of the Institute of Petroleum, Vol. 30, No. 242, Feb., 1944, pp. 52-56.)
108	22052	U.S.A.	...	*On the Force and Moment Acting on a Body in Shear Flow.* (Yung-Huai Kuo, Quarterly of Applied Mathematics, Vol. 1, No. 3, October, 1944, pp. 273-275.)
109	22287	U.S.A.	...	*Concerning the Acceleration Potential of Two-Dimensional Flow.* (L. Bers, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 93-96.)
				Turbulence and Boundary Layer.
110	21426	U.S.S.R.	...	*Aerodynamic Theory Applied to Turbulent Combustion Chambers of Furnaces.* (J. L. Pekker, S.K.T., No. 1, Jan., 1940, pp. 25-29.)
111	21428	Germany	...	*Investigation on Turbulent Mixing Processes (Injector with Pressure Difference).* (K. Viktorin, Forschung, Vol. 12, No. 1, Jan.-Feb., 1941, pp. 16-30.)
112	22140	G.B. ...	...	*Note on Boundary Layer Transition.* (H. C. H. Townend, R. and M., No. 1,873, 22/2/39, pp. 1-4.)
113	22279	U.S.A.	...	*A Review of the Statistical Theory of Turbulence.* (H. L. Dryden, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 7-42.)
114	22280	U.S.A.	...	*On the Motion of a Pendulum in a Turbulent Fluid.* (C. C. Lin, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 43-48.)
				Compressibility.
115	21948	G.B. ...	...	*Compressibility Effects—II.* (W. F. Hilton, Aeroplane, Vol. 6, No. 1,716, 14/4/44, pp. 411-413.)
116	22043	U.S.A.	...	*On a Class of Differential Equations in Mechanics of Continua (Application to Incompressible and Compressible Flow).* (L. Bers and A. Gelbart, Quarterly of Applied Mathematics, Vol. 1, No. 2, July, 1943, pp. 168-188.)
117	22122	G.B. ...	...	*Compressibility Effects in Aeronautics—I.* (W. F. Hilton, Aeroplane, Vol. 66, No. 1,715, 7/4/44, pp. 389-390.)
118	22195	G.B. ...	...	*Compressibility Effects in Aeronautics—III.* (W. F. Hilton, Aeroplane, Vol. 66, No. 1,717, 21/4/44, pp. 448-449.)

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			Wind Tunnels and Research Data.
120	21448	Switzerland ...	*The Newly Formed Swiss Aeronautical Research Association.* (Inter. Avia., No. 903, 22/1/44, p. 12.)
121	21761	U.S.A. ...	*N.A.C.A. Altitude Research Wind Tunnel.* (Aero Digest, Vol. 44, No. 2, 15/1/44, p. 187.)
122	21801	G.B.	*Two New U.S.A. Wind Tunnels.* (Aeroplane, Vol. 66, No. 1,714, 31/3/44, p. 352.)
123	22080	G.B.	*Perspex Wind Tunnel.* (Plastics, Vol. 8, No. 83, April, 1944, pp. 151-153.)
124	22097	U.S.A. ...	*New Ordnance Wind Tunnel.* (Army Ordnance, Vol. 26, No. 143, April, 1944, pp. 343-344.)
			AIRCRAFT, AIRSCREWS, ACCESSORIES.
			Civil Aircraft Types.
125	21186	G.B.	*Seven Post-War Types (Review of Commons Debate on Civil Aviation).* (Flight, Vol. 45, No. 1,839, 23/3/44, p. 317.)
126	21212	Germany ...	*The Single-Seater Slow Speed Aircraft L.F. 1 Built by the Brunswick Technical High School.* (A. Winter, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, pp. 43-45.)
127	21440	G.B.	*Miles* x 60-*Ton Transport Land Plane (Project).* (Inter. Avia., No. 903, 22/1/44, pp. 7-8.)
128	21441	G.B.	*"Brabazon" (100-Ton) and "Tudor" (40-Ton) Civil Transport Projects.* (Inter. Avia., No. 903, 22/1/44, p. 9.)
129	21837	U.S.A. ...	*Development of the Ercoupe, an Aeroplane for Simplified Private Flying.* (Fred. Weick, S.A.E. Preprints, 13-14/3/41, pp. 1-17.)
130	21937	G.B.	*The Cameron Rotor Plane.* (Flight, Vol. 45, No. 1,842, 13/4/44, p. 397.)
			Civil Aviation and Air Cargo.
131	21155	Poland ...	*Polish Aviation—Post-War Aims.* (Times Trade and Engineering, Vol. 54, No. 959, January, 1944, p. 33.)
132	21196	U.S.A. ...	*S.A.E. Air Cargo Meeting (Summary of Papers).* (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 36-38, 90-96.)
133	21225	U.S.A. ...	*Transatlantic Air Travel.* (G. Loening, American Aviation, Vol. 7, No. 18, 15/2/44, pp. 24, 70.)
134	21375	U.S.A. ...	*The Future of Aviation.* (R. S. Damon, S.A.E. Journal, Vol. 53, No. 1, Jan., 1944, pp. 17-19, 39.)
135	21597	G.B.	*Continental Air Transport.* (V. L. Gruberg, Flight, Vol. 45, No. 1,841, 6/4/44, pp. 366-369.)
136	21726	G.B.	*Foundations for the Air Mail of the Future.* (J. C. Fitzmaurice, Aeronautics, Vol. 10, No. 2, March, 1944, pp. 28-32.)
137	21736	U.S.A. ...	*Domestic Air Carrier Statistics for Nov., 1943.* (Civil Aeronautics Journal, Vol. 5, No. 2, 15/2/44, p. 21.)

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138	21727	U.S.A. ...	*Comparative Charts of Domestic Operations for 1941, 1942, 1943.* (Civil Aeronautics Journal, Vol. 5, No. 2, 15/2/44, p. 23.)
139	21741	U.S.A. ...	*Civil Air Transport in the War.* (Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 53-55, 247-252.)
140	21766	U.S.A. ...	*Prologue to Commercial Trans-Polar Navigation (Survey of Navigational Difficulties).* (T. Collins, Aero Digest, Vol. 44, No. 3, February, 1944, pp. 52-53, 220-222.)
141	21947	G.B.	*Post-War Aims in Civil Aviation—I.* (H. Roxbee-Cox, Aeroplane, Vol. 66, No. 1,716, 14/4/44, p. 409.)
142	21979	U.S.A. ...	*Air Age Education Research Organisation to Promote Public Understanding of the Problems of Air Transport (Sponsored by American Airlines).* (Aviation, Vol. 43, No. 1, Jan., 1944, p. 241.)
143	22118	G.B.	*Wartime Air Transport in Scotland.* (Aeroplane, Vol. 66, No. 1,715, 7/4/44, p. 380.)
144	22148	G.B.	*Freight Transport by Aeroplane.* (The Engineer, Vol. 177, No. 4,606, 21/4/44, p. 311.)
145	22191	G.B.	*Post-War Aims in Civil Aviation—II.* (H. Roxbee-Cox, Aeroplane, Vol. 66, No. 1,717, 21/4/44, p. 441.)
			General Aircraft Design.
146	21229	U.S.A. ...	*Lloyd Stearman Designs Post-War Family Aeroplane.* (American Aviation, Vol. 7, No. 18, 15/2/44, p. 34.)
147	21747	U.S.A. ...	*Where Should Weight Reduction End?* (A. T. Curt, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 84-86, 231-235.)
148	21754	U.S.A. ...	*Essentials of Aeroplane Duct Design.* (C. A. Mobley, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 122-129, 210-214.)
149	21822	U.S.A. ...	*The Intercooling Problem in Aeroplane Design.* (H. E. Dickinson, S.A.E. Preprints, 5-7/4/44, pp. 1-12.)
150	21876	U.S.A. ...	*Experience with the Use of Magnesium in Aircraft.* (J. C. Mathes, S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 62-66, 72.)
151	21985	U.S.A. ...	*Aviation's Hot House—Review of Future Developments (Giant Planes, Flying Wing Aircraft, etc.).* (A. Klemin, Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 64-66.)
152	22113	G.B.	*Flight of Birds—Reflection on Wing Design* (P. J. Lively, Flight, Vol. 45, No. 1,843, 20/4/44, p. 431.)
153	22114	G.B.	*The Ducted Radiator (Why Negative Drag is Produced).* (R. Shoham, Flight, Vol. 45, No. 1,843, 20/4/44, p. 432.)
154	22137	G.B.	*The Torsional Divergence of a Horn-Balanced Control Surface.* (A. G. Pugsley and R. D. Starkey, R. and M., No. 1,880, 14/1/39, pp. 1-8.)

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155	22173	Canada ...	*The Aerofoil Fuselage (Burnelli's Flying Wing Design).* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, pp. 72-74.)
156	22174	Canada ...	*Need for More Tricycle Undercarriages.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, pp. 74-76.)
157	22180	Canada ...	*Surface Combustion Heater System Designed for High Altitude Aircraft.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, pp. 102-103.)
158	22221	U.S.A. ...	*Fundamentals of Aeroplane Design (Safety, Weight and Serviceability).* (A. L. Klein, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, 5-7/4/44, pp. 1-7.)
159	22276	G.B.	*Are We Approaching the Era of the All Plastic Aircraft?—II.* (W. R. Scott, Sailplane, Vol. 12, No. 2, pp. 12, 16.)
			Accessories.
160	21201	U.S.A. ...	*New Aeroplane Lamp (Arrow Dome Light).* (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, p. 38.)
161	21493	G.B.	*Levered Suspension (An Interesting Undercarriage Development Explained and Reviewed).* (R. H. Bound, Flight, Vol. 45, No. 1,840, 30/3/44, pp. 345-346.)
162	21495	G.B.	*Boundary Layer Control (Variation in Slot Position Required).* (Flight, Vol. 45, No. 1,840, 30/3/44, p. 348.)
163	21750	U.S.A. ...	*Designing Lighter Aircraft Electrical Equipment.* (J. F. Carland, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 98-103, 214-217.)
164	21751	U.S.A. ...	*High Capacity Heaters for High Altitude Flying (Midget Janitrol Heaters).* (Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 106-112.)
165	21769	U.S.A. ...	*Reducing Friction in Cable Control Systems.* (K. D. Remington and F. A. Mathews, Aero Digest, Vol. 44, No. 3, February, 1944, pp. 74-77, 197-202.)
166	21888	G.B.	*Auxiliary Generating Plant for Aircraft.* (Engineering, Vol. 157, No. 4,082, 7/4/44, pp. 265-268.)
167	21940	G.B.	*Drift Undercarriages—Three Possible Disadvantages.* (Flight, Vol. 45, No. 1,842, 13/4/44. p. 401.)
168	21996	U.S.A. ...	*Aircraft Heater Operates at Extremes of Temperature and Pressure.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 81-82.)
169	22230	U.S.A. ...	*Prerotation of Landing Gear Wheels.* (Henry F. Schipped, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, 5-7/4/44, pp. 1-5.)
			Propellers.
170	21101	U.S.A. ...	*World's Largest Four-Bladed Propeller (17 ft. Diameter, Weight 800 lb.) (Photo).* (Aero Digest, Vol. 43, No. 4, October, 1943, p. 313.)

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171	21156	G.B.	...	*Airscrew Inspection—Need for Accuracy.* (Times Trade and Engineering, Vol. 54, No. 959, January, 1944, p. 34.)
172	21262	G.B.	...	*Hollow Metal Airscrew Blades (British Patent).* (Aircraft Production, Vol. 6, No. 66, April, 1944, p. 203.)
173	21409	G.B.	...	*Comparison of Wood and Metal as Blade Materials for Airscrews (British Views).* (Der Flieger, Vol. 22, No. 12, Dec., 1943, pp. 374-376.)
174	21425	U.S.S.R.	...	*Calculation of Blade Stresses by the Membrane Theory.* (A. D. Kovalenko, S.K.T., No. 1, Jan., 1940, pp. 8-15.)
175	21475	G.B.	...	*Reversible Pitch Airscrews as Brakes.* (Aeroplane, Vol. 66, No. 1,713, 24/3/44, p. 318.)
176	21811	G.B.	...	*Pressure Distribution on Propeller Blades.* (J. L. Taylor, Science Abstracts, Section A, Vol. 47, No. 553, January, 1944, p. 11.)
177	21816	U.S.A.	...	*Propeller Efficiency of a Light Aeroplane.* (K. D. Wood and W. R. Woodwarel, S.A.E. Preprints, 5-7/4/44,pp. 1-9.)
178	21824	U.S.A.	...	*Propeller and Gear Ratio Requirements for Aircraft Designed for Cruising Operation.* (R. S. Schairer, S.A.E. Preprints, 5-7/4/44, pp. 1-6.)
179	21834	U.S.A.	...	*Considerations of the Design of Aircraft Propellers.* (T. B. Rhines, S.A.E. Preprints, 13-14/3/41, pp. 1-11.)
180	22069	G.B.	...	*Fundamentals of the Marine Screw Propeller—II.* (G. S. Baker, Engineering, Vol. 157, No. 4,083, 14/4/44, pp. 298-300.)
181	22142	G.B.	...	*A Graphical Method of Calculating the Performance of an Airscrew* (C. N. H. Lock, R. and M., No. 1,849, 2/8/38, pp. 1-70.)
182	22223	U.S.A.	...	*Particulars of the German V.D.M. Electric Propeller.* (John D. Waugh, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, 5-7/4/44, pp. 1-15.)
				Rotary Wing Aircraft.
183	21402	Germany	...	*Rotating Wing Aircraft (Breguet, Focke and Prospects).* (W. Zuerl, Der Flieger, Vol. 22, No. 22, Dec., 1943, pp. 357-367.)
184	21491	G.B.	...	*The Cameron Rotor Plane (Helicopter, Gyroplane and Orthodox Aircraft Combined in One, Retractable Rotor Blades and Variable Incidence Wings).* (Flight, Vol. 45, No. 1,840, 30/3/44, pp. 342-343.)
185	21725	U.S.A.	...	*Helicopter Designed by Enca Bossi of Higgins Aircraft (Photo).* (Flying, Vol. 34, No. 2, February, 1944, p. 81.)
186	22176	Canada	...	*The Helicopter's Future.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, p. 76.)

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			Performance, Stability, Control.
187	21271	G.B. ...	... *Vibrations in Aircraft. Part II—Resonances in Complex System.* (R. G. Manley, Aircraft Engineering, Vol. 16, No. 181, March, 1944, pp. 73-75.)
188	21738	U.S.A.	... *Factors Affecting Climb of Transport Aircraft, (C.C.A.A. Reports).* (Civil Aeronautics Journal, Vol. 5, No. 2, 15/2/44, p. 20.)
189	21746	U.S.A.	... *Seaplane Take-off Computations.* (M. M. Munk, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 82, 236.)
190	21960	U.S.A.	... *Pressure Control in Aircraft Hydraulic Systems—Part I.* (E. M. Greer and H. J. Marx, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 169-172, 360.)
191	21977	U.S.A.	... *Cruise Control for Flying Efficiency. Part VI—Improvement in Accuracy of Fuel Consumption Indicators, etc.* (R. D. Speas and J. T. Farah, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 227, 318-325.)
192	22138	G.B. ...	... *The Influence of Wing Flexural Axis Position and Aerodynamic Torsional Damping Upon Wing Flutter.* (A. G. Pugsley and G. A. Naylor, R. and M., No. 1,879, 3/3/39, pp. 1-5.)
193	22139	G.B. ...	... *The Effect of Landing Shock on Wing and Undercarriage Deflexion.* (R. A. Fairthorne, R. and M., No. 1,877, 17/1/39, pp. 1-11.)
194	22222	U.S.A.	... *Measurement and Prediction of Aircraft Vibration.* (E. Forest Critchlow, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, 5-7/4/44, pp. 1-17.)
			Runways, Soils.
195	21161	U.S.A.	... *Airport Drainage (Booklet).* (Clay Products Associations, 1942, pp. 15.)
196	21263	G.B. ...	... *Practical Considerations of the Bearing Capacity of Ground—Part II.* (R. R. Minikin, Civil Engineering, Vol. 39, No. 452, Feb., 1944, pp. 28-31.)
197	21292	G.B. ...	... *The Technics of Ground Facilities. IX.—Gardens in Airports.* (J. P. Chaplin, Parks and Sports Grounds, Vol. 9, No. 5, Feb., 1944, pp. 12-13.)
198	21297	G.B. ...	... *Reaction of Flexible Pavements Under Aircraft Loads.* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, p. 6.)
199	21298	G.B. ...	... *An All-Weather Runway (Use of Hollow Clay Tiles).* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, p. 6.)
200	21303	G.B. ...	... *Airport Drainage Design.* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, p. 19.)
201	21371	Canada	... *Trends in Concrete Paving.* (D. O. Robinson, Roads and Bridges, Vol. 82, No. 2, Feb., 1944, pp. 36-37, 81.)
202	21374	Canada	... *Soil—Cement Mixtures for Base Courses.* (Roads and Bridges, Vol. 82, No. 2, Feb., 1944, pp. 48-50, 91-8.)

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203	21429	Germany ...	*Elastic loading of the soil under foundations (soil mechanics.)* (L. Foppl, Forschung, Vol. 12, No. 1, Jan.-Feb., 1941, pp. 31-39.)
204	21518	U.S.A. ...	*Soil Tests for the Design of Runway Pavements.* (G. E. Bertrand, T. A. Middlebroke.) (Procs. Highway Research Board, 1942.) (Photostat copy.)
205	22107	G.B.	*Fractical Considerations on the Bearing Capacity of Ground (Part III).* (R. E. Minikin, Civil Engineering, Vol. 39, No. 453, March, 1944, pp. 52-54.)
			Maintenance.
206	21190	U.S.A. ...	*Civilian Airline Maintenance under Wartime Conditions.* (E. L. Warner, Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 17-19, 80-4.)
207	21818	U.S.A. ...	*Operational and Maintenance Difficulties.* (R. E. White, S.A.E. Preprints, April 5-7th, 1944, pp. 1-5.)
208	21820	U.S.A. ...	*Cold Weather Operation of Aircraft.* (G. A. Bleyle, S.A.E. Preprints, April 5-7, 1944, pp. 1-6.)
209	21975	U.S.A. ...	*P.A.A. Servicing Equipment.* (Aviation, Vol. 43, No. 1, Jan., 1944, pp. 221-4.)
			Icing Problems.
210	21162	U.S.A. ...	*Skidproofing Icy Roads and Streets (Booklet).* (Calcium Chloride Association Bulletin, No. 27, 1942 Edition, p. 33.)
211	21172	U.S.A. ...	*Ice Control for Airport Runways.* (Calcium Chloride Ass. News, Vol. 10, No. 1, Feb., 1944.)
212	21372	Canada ...	*Ice Control at Airports (Use of Calcium Chloride).* (Roads and Bridges, Vol. 82, No. 2, Feb., 1944, pp. 39, 81.)
213	21821	U.S.A. ...	*The Pneumatic De-Icer.* (J. E. Gulick, S.A.E. Preprints, April 5-7th, 1944, pp. 1-8.)
214	21823	U.S.A. ...	*Recent Trends in Airplane Ice-Prevention Technique.* (L. A. Rodert, S.A.E. Preprints, April 5-7th, 1944, pp. 1-11.)
215	21836	U.S.A. ...	*Icing Problems Attendant of the Operation of Transport Aircraft.* (R. L. McBrien, S.A.E. Preprints, March 13-14th, 1941, pp. 1-13.)
			Airport Operation and Planning.
216	21138	G.B.	*Eire as Air Base.* (Times Trade and Engineering, Vol. 54, No. 958, Dec., 1943, p. 31.)
217	21173	U.S.A. ...	*A short selected Bibliography on Airways and Airport Planning and Protection of Approaches, with Annotations.* (Issued by the America Soc. of Planning Officials, 1944, 8 pp.)
218	21224	U.S.A. ...	*Airport Planning Conference at Kansas City (Review of Papers).* (S. B. Dobden, American Aviation, Vol. 7, No. 18, 15/2/44, pp. 22, 48-80.)

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219	21289	G.B. ...	*Southampton's Proposed Airbase.* (Parks and Sports Grounds, Vol. 9, No. 5, Feb., 1944, pp. 4-5.)
220	21291	G.B. ...	*Planning Commercial Airports in Switzerland. No. II.* (R. Czell, Parks and Sports Grounds, Vol. 9, No. 5, Feb., 1944, pp. 9-11.)
221	21296	G.B. ...	*Proposed Golden Gate International Airport.* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, p. 5.)
222	21299	G.B. ...	*Controlling Airport Traffic.* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, pp. 9-10.)
223	21300	G.B. ...	*Wartime Aerodrome Construction Figures.* (Parks and Sports Grounds, Vol. 9, No. 6, March, 1944, p. xi.)
224	21471	G.B. ...	*Airport for London (£500 offered for best Design).* (Aeroplane, Vol. 66, No. 1713, 24/3/44, p. 316.)
225	21815	U.S.A.	*Postwar Transport Airplanes and Airports.* (C. Froesch, A.S.M.E. Preprints, April 3-5th, 1944, pp. 1-14.)
226	21839	U.S.A.	*Airport Management (Review of Papers).* (N. Bramley, American Aviation, Vol. 7, No. 19, 1/3/44, pp. 20, 40.)
227	21955	U.S.A.	*A Landing Gear "Yardstick" for Postwar Airport Layouts.* (Should Plane design Determine Airport Layout—or Should Airport Factors determine Plane Design?). (J. H. Geisse, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 120-1, 243-357.)
228	22120	G.B. ...	*A Transatlantic Airport for Sweden.* (Aeroplane, Vol. 66, No. 1715, 7/4/44, p. 382.)

Investigations and General Problems.

229	21446	U.S.A.	*Martin "Mars" Trial Flights.* (Inter Avia, No. 903, 22/1/44, p. 10.)
230	21489	G.B. ...	*The Flying Boat* (The Problems of Loading Freight and Lateral Stability). (W. P. Kemp, Flight, Vol. 45, No. 1840, 30/3/44, p. a/b.)
231	21770	U.S.A.	*Scientific Loading of Modern Aircraft.* (L. F. Kernkemp, Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 78, 214-220.)
232	21775	U.S.A.	*Cracking of Wood Wing Spars.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 98.)
233	21873	U.S.A.	*Speculations on Airworthiness and Operating Regulations.* (Edward Warner, S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 37-48.)
234	22183	Canada	*Airline Experiments with Food in High Altitude Chamber.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, p. 122.)

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Named Types.

235	21253	G.B. ...	*Rolls Royce Griffon.* (Aircraft Production, Vol. 6, No. 66, April, 1944, p. 157.)

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236	21477	G.B.	...	*Sikorsky R-4 Helicopter Power Plant* (*Photo*) (Franklin 6-cylinder, aircooled, inline engine). (Aeroplane, Vol, 66, No. 1713, 24/3/44, p. 322.)
237	21731	G.B.	...	*The Napier Sabre and the Cyclone Engines.* (Aeronautics, Vol. 10, No. 2, March, 1944, pp. 56-7.)
238	21826	U.S.A.	...	*Discussion on the Daimler Benz 601A Engine.* (W. H. Sprenkle, S.A.E. Reprints and Preprints, June 1-6th, 1941, pp. 1-10.)
239	21827	U.S.A.	...	*Discussion of Daimler-Benz 601A Ignition System.* (E. K. Von Mertens, S.A.E. Reprints and Preprints, June 1-6th, 1941, pp. 1-3.)
240	21828	U.S.A.	...	*Design Features and Performance—Characteristics of the Mercedes-Benz DB-601 Aircraft Engine.* (R. W. Young, S.A.E. Reprints and Preprint, June 1-6, 1944, pp. 1-28.)
241	21906	G.B.	...	*Two-Stroke Engines—A New Swedish Design* (*R.T.P.3 Translation*). (Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 151-2.)
242	22295	Sweden	...	*Mannerstedt 42 Cylinder Aircraft Engines.* (N. W. Bourdon, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 37-71.)
				I.C. and Oil Engines.
243	21280	G.B.	...	*The Three Cylinder Doxford Opposed Piston Marine Oil Engine—II.* (W. H. Purdie, Engineering, Vol. 177, No. 4602, 24/3/44, pp. 228-9.)
244	21473	G.B.	...	*Fuels, Internal Combustion Engines and the Future.* (Aeroplane, Vol. 66, No. 1713, 24/3/44, p. 317.)
245	21633	U.S.A.	...	*Design of Internal Combustion Engine Power Plants.* (G. C. Bowyer, A.S.M.E. Preprints, 1942, pp. 1-4.)
246	21889	G.B.	...	*Wear in Oil Engines.* (Engineering, Vol. 157, No. 4082, 7/4/44, p. 272.)
247	22065	G.B.	...	*W. D. Priestman and the Oil Engine.* (H. Shoosmith, Engineering, Vol. 157, No. 4083, April 14th, 1944, pp. 286-8.)
248	22147	G.B.	...	*Operational Aspects of an Oil Engine Plant.* (R. P. Kay, The Engineer, Vol. 177, No. 4606, 21/4/44, pp. 306-8.)
				Accessories (Cylinders, Pistons, etc.).
249	21222	G.B.	...	*Bibliography of Published Information on Piston Rings.* (1. General; 2. Materials and Manufacturing Methods; 3. Protective Coatings; 4. Stress Destruction; 5. Friction, Wear and Ring Sticking; 6. Lubrication, Oil Control and Temperature Effects; 7. Blowby and Flutter; 8. Diesel Engine Rings.—R.T.P.3 Bibliography, No. 103, March, 1944.)
250	21407	France	...	*Magnetic Oil Filters* (*Philips*). (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 372.)

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251	21432	Germany ...	*Worm Gears with Fluid Friction* (Transmitted load and friction on a function of shape of bolt, dimensions, r.p.m. and oil viscosity).(C. Niemann, V.D.I. Forschungesheft, No. 412, Jan.-Feb., 1942, pp. 1-29.)
252	21614	U.S.A. ...	*Bearings for Diesel Engines.* (A. B. Willi, A.S.M.E. Preprints, June, 1942, pp. 439-448.)
253	21812	U.S.A. ...	*Engineering Piston Rings for High Speed Diesels.* (P. S. Lane and S. Nixon, S.A.E. Preprint, June 17-19th, 1942, pp. 1-8.)
254	21832	U.S.A. ...	*Design of Airscoops for Aircraft Carburettors.* (R. J. Kitler, S.A.E. Preprints, March 13-14th, 1944, pp. 1-10.)
255	21913	G.B.	*Piston Rings—Testing Gas Tightness by Measuring Blowby* (Abstract of S.A.E Paper). (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 168.)
256	21973	U.S.A. ...	*Fast Action Portable Engine Heater* (York Heater. 2,000 B.T.U. per hour, Total Weight 40 lb.) (Aviation, Vol. 43, No. 1, Jan., 1944, p. 217.)
257	21989	U.S.A. ...	*Cast Crankshafts Replace Forged Crankshafts.* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 69.)
258	22224	U.S.A. ...	*Piston Ring Development for the V-770 Engine (Ranger).* (C. H. Hartesveldt and M. Epps, S.A.E. Preprint, April 5-7th, New York Meeting, April 5-7th, 1944, pp. 1-9.)
259	22225	U.S.A. ...	*Basic Principles of Power Boost Flight Controls.* (E. G. Riley, S.A.E. Preprint, April 5-7th, New York Meeting, April 5-7th, 1944, pp. 1-8.)
260	22232	U.S.A. ...	*Hydraulic Engine Power Controls.* (H. Alexanderson, S.A.E. Preprint, April 5-7th, New York Meeting, April 5-7th, 1944, pp. 1-7.)

Superchargers, Boilers, Turbines.

261	21126	G.B.	*Gas Producers-Conditions of Efficient Operation.* (Times Trade and Engineering, Vol. 54, No. 957, Nov., 1943, p. 28.)
262	21279	G.B.	*The Future of the Gas Turbine—No. II.* (B. Wood, Engineer, Vol. 177, No. 4002, 24/3/44, pp. 224-6.)
263	21315	Germany ...	*Computation of Steam Boilers by a Graphical Method* (Digest). (From Die Warme, Vol. 66, No. 17, Aug., 1943, pp. 185-8, T. Geissler, Engineers' Digest, Vol 5, No. 1, Jan., 1944, pp. 22-4.)
264	21316	Czecho-Slovakia ...	*Electrical Purity Control of Boiler Feed-Water* (Digest). (From Elektrotechnicky Obzor, Prague, Vol. 31, No. 12, Dec., 1942, pp. 185-6, V. Hoffmann, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 25-6.)
265	21332	G.B.	*Efficiencies and Outputs of Combustion Turbines. II.* (S. J. Davies, and H. I. Fawizi, Engineering, Vol. 157, No. 4080, March, 1944, pp. 221-4.)

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266	21340	U.S.A. ...	*Boiler Embrittlement* (Comprehensive Study and Bibliography). (C. A. Zapfe, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, pp. 81-126.)
267	21347	U.S.A. ...	*Superchargers for Aircraft Engines* (Comprehensive Treatment of the Turbo-Supercharger). (R. G. Standerwick and W. J. King, Transaction of the A.S.M.E., Vol. 66, No. 1, Jan., 1944, pp. 61-73.)
268	21423	U.S.A. ...	*Radiation Pyrometry in Turbosupercharger Testing.* (V.P. Head, A.S.M.E. Preprint, Nov., 1943, pp. 1-15.)
269	21424	U.S.S.R. ...	*On the question of Using unshrouded blades in Gas Turbines.* (I. Shevyskov, S.K.T., No. 1, Jan., 1940, p. 122.)
270	21506	G.B.	*The Future of the Gas Turbine—No. III.* (B. Wood, Engineer, Vol. 177, No. 4603, 31/3/44, pp. 242-4.)
271	21531	U.S.A. ...	*Turbosupercharger Testing Facilities.* (E. E. Stoeckly, A.S.M.E. Preprint, Nov./Dec., 1943, pp. 1-10.)
272	21595	G.B.	*Turbine Compresser Units.* (G. Jeffrey Smith, Flight, Vol. 45, No. 1841, 6/4/44, pp. 360-631.)
273	21608	Germany ...	*Energy Transformation in Centrifugal Pumps (Digest).* (E. Grunagel, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 257-258.)
274	21623	U.S.A. ...	*Spreader Stokers Applied to Marine Boilers.* (Otto de Lorenzi, A.S.M.E. Preprints, 1942, pp. 1-6.)
275	21664	G.B.	*Efficiencies and Outputs of Combustion Turbines* (Correspondence). (S. J. Davies and H. I. Fawzi, Engineering, Vol. 157, No. 4081, 31/3/44, pp. 254.)
276	21665	G.B.	*Corrosion of Boiler Tubes.* (T. H. Turner, Engineering, Vol. 157, No. 4081, 31/3/44, p. 254.)
277	21929	G.B.	*High Pressure Power and Low Pressure Steam Plant* (Turbine Blade Deposits: High Pressure Flange Joints, etc.) (Engineer, Vol. 177, No. 4605, 14/4/44, pp. 292-4.)
278	21993	U.S.A. ...	*Ship Turbines.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 77-8.)
279	22214	U.S.A. ...	*Certain Aspects of High Pressure Centrifugal Pumping Cycles* (Pump for feed water of Boiler). (Ignor J. Karassik, A.S.M.E. Preprint, April 3rd-5th, 1944, pp. 1-34.)
			Engine Performance.
280	21304	Germany ...	*The Measurement of Power on Aero Engines in Flight (Digest). (From Luftwissen, Vol. 10, No. 6, June, 1943, pp. 165-170).* (W. Diepenbruck, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 1-3.)
281	21612	U.S.A. ...	*Excess Air and B.m.e.p.* (P. H. Schweitzer, A.S.M.E. Preprints, June, 1942, pp. 1-4.)

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282	21774	U.S.A. ...	*Rôle of the Auxiliary Powerplant (Current Performance and Future Development: Review of Types.)* (B. Reynolds, Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 94-8.)
283	21817	U.S.A. ...	*The Relation of Intake Charge Cooling to Engine Performance.* (R. A. Droegemueller, D. S. Hersey, W. A. Kuhrt, S.A.S. Preprints, April 5-7th, 1944, pp. 1-9.)
			Jet Propulsion.
284	21188	G.B.	*Jet Propulsion for Aircraft—Suggested Modifications.* (Flight, Vol. 45, No. 1839, 23/3/44, p. 320.)
285	21494	G.B.	*Comparative Efficiency of Jet and Rocket.* (E. Burgess, Flight, Vol. 45, No. 1840, 30/3/44, p. 347.)
286	21596	G.B.	*Jets versus Aircrews.* (L. G. Fairhurst, Flight, Vol. 45, No. 1841, 6/4/44, p. 362.)
287	21638	U.S.S.R. ...	*Some Questions on the Theory of the Campini Air Jet Propeller.* (G. A. Varshavsky, J. Tech. Phys. U.S.S.R., Vol. XI, No. 12, 1941, pp. 1123-1127.)
288	21765	U.S.A. ...	*Has Jet Propulsion Arrived? (An Examination of Jet and Semi-Jet Propulsion in the Light of present-day Design Trends.)* (H. N. Munk, Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 49-51.)
			Thermodynamics.
289	21379	U.S.A. ...	*Operating Temperatures and Stresses of Aluminium Aircraft Engine Parts* (Cylinder Heads and Pistons). (E. J. Willis and R. C. Anderson, S.A.E. Journal, Vol. 52, No. 1, Jan., 1944, pp. 28-36.)
290	21635	U.S.A. ...	*Heat Recovery from Diesel Engines.* (F. P. Grutzner, A.S.M.E. Preprints, 1942, pp. 1-5.)
291	21815	U.S.A. ...	*Temperature Distribution within Boiler Tubing under Oblique Radiation.* (W. S. Kimball, A.S.M.E. Preprints, April 3-5th, 1944, pp. 1-14.)
292	21835	U.S.A. ...	*Cooling Characteristics of Submerged Light Aircraft Engines.* H. H. Ellerbrock, S.A.E. Preprints, March 13-14th, 1941, p.p 1-10.)
293	22220	U.S.A. ...	*Engine Cooling Fan Theory and Practice.* (Kenneth Campbell, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, April 5-7th, 1944, pp. 1-17.)
			Testing (Combustion, etc.).
294	21211	Germany ...	*The Combustion Process in Precombustion Chamber Diesel Engines (Digest).* F. Eberle, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 42.)
295	21382	U.S.A. ...	*S.A.E. Ignition Research Improves Aircraft Engine Output.* (S.A.E. Journal, Vol. 55, No. 1, Jan., 1944, pp. 44-5.)
296	21329	G.B.	*Vapour-Lock in Fuel Systems* (Sci. Lib. Bib. 604). (Science Library Bibliographical Series, Nos. 601, 603, 602, 604.)
297	21621	U.S.A. ...	*Instrumentation in the Study of Diesel Combustion.* (E. W. Landen and L. A. Blane, A.S.M.E. Preprints, 1942, pp. 1-5.)

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298	21696	G.B. ...	... *Oil Drag in Worm Gear Boxes.* (H. ,Walker, Machinery, Vol, 64, No. 1640, 16/3/44, pp. 297-8.)
299	21697	G.B. ...	... *Engine Test Bed Filtration.* (C. G. Vokes, Mechanical World, Vol. 115, No. 2985, 17/3/44, pp. 290-1.)
300	21825	U.S.A.	... *An Investigation of Chafing on Aircraft Engine Parts.* (H. C. Gray, R. W. Jenny, S.A.E. Preprints, April 5-7, 1944, pp. 1-7.)
301	21829	U.S.A.	... *Light Plane Engines and their Fuel Problems.* (C. T. Doman, S.A.E. Reprints and Preprint, June 1-6th, 1941, pp. 1-7.)
302	21830	U.S.A.	... *The Present Status of Combustion Research.* (E. F. Fiock, S.A.E. Preprints, March 13-14th, 1941, pp. 1-11.)
303	21831	U.S.A.	... *Compounding—Facts, Fallacies* (Tests on Internal Combustion Engine). (F. L. Prescott, S.A.E. Preprints, March 13-14th, 1941, pp. 1-6.)
304	21833	U.S.A.	... *Some Fractures Influencing Aircraft Engine-Propeller Vibrations.* (C. M. Kearne, S.A.E. Preprints, March 13-14th, 1941, pp. 1-8.)
305	21972	U.S.A.	... *Supercharged Ignition Cures 'Rough Engine.'* (Aviation, Vol. 43, No. 1, Jan., 1944, pp. 209-211, 359.)
306	22217	U.S.A.	... *A Study of Stoker Fuel Beds* (for Boilers). (Otto de Toronzi, A.S.M.E. Preprint, April 3-5th, 1944 pp. 1-7.)
307	22126	G.B. ...	... *New Curtiss-Wright Test Cell.* (*Motors up to* 5,000 *h.p. and Airscrews up to* 30*ft. diam.*). Photo. (Aeroplane, Vol. 66, No. 1715, 7/4/44, p. 375.)
			Cold Starting, Injection.
308	21406	Germany	... *Infinitely Variable Control Mechanism for Fuel Injection Pumps* (Pat. 710463). (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 371.)
309	21607	Germany	... *Mixing Progress in Injectors* (Digest). (G. Fluzel, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, p. 257.)
310	21798	G.B. ...	... *Water Injection.* (C. G. Vokes, Aeroplane, Vol. 66, No. 1714, 31/3/44, p. 364.)
			Servicing and Maintenance.
311	21380	U.S.A.	... *Cooling Systems Maintenance (including Cleaning, Flushing, Rust Prevention and Antifreeze).* (S.A.E. Journal, Vol. 52, No. 1, Jan., 1944, pp. 25-39.)
312	21383	U.S.A.	... *Recommendations on the Tightening of Bolts, Nuts and Studs.* (S.A.E. Journal, Vol. 53, No. 1, Jan., 1944, pp. 45, 49.)
313	21772	U.S.A.	... *Fire Protection for Aircraft Powerplants (Use of Carbon Dioxide and Methyl Bromide: Fire Detectors and Fire Detecting Systems.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, pp.86-8, 224-6.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
314	21878	U.S.A.	... *Cooling System Maintenance* (Including Cleaning, Flushing, Rust Prevention and Anti-Freeze. Part II). (S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 29-37.)
315	21904	G.B. ...	... *Needle Roller Bearings—Some Notes on their Application and Maintenance.* (E. V. Patterson, Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 147-150.)

FUELS AND LUBRICANTS.

Fuels (Liquid).

316	21235	G.B. ...	... *Liquid Fuels and Chemicals from Coal and Petroleum, Part II.* (H. Moore, Engineering, Vol. 157, No. 4079, March, 1944, pp. 204-5.)
317	21376	U.S.A.	... *The Effect of Wartime Fuel Developments upon Post-War Automobiles.* (A. T. Colwell, S.A.E., Journal, Vol. 52, No. 1, Jan., 1944, pp. 1-12.)
318	21739	G.B. ...	... *Petroleum Refining—A Chemical Industry (Raw Material Vital for Post-War British Trade).* (F. Kind, Petroleum Times, Vol. 48, No. 1217, March, 1944, pp. 159-160, 172-6.)
319	21887	G.B. ...	... *Liquid Fuels and Chemicals from Coal and Petroleum.* (H. Moore, Engineering, Vol. 157, No. 4082, 7/4/44, p. 265.)
320	21909	G.B. ...	... *Need for a British Refining Industry.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 129-130.)
321	21991	U.S.A.	... *Gasoline from Coal.* (J. Randolph, Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 73-6.)
322	22064	G.B. ...	... *Liquid Fuels and Chemicals from Coal and Petroleum—II.* (H. More, Engineering, Vol. 157, No. 4083, April 14th, 1944, p. 286-8.)
323	22210	U.S.A.	... *Liquefied Petroleum Gases in* 1943. (G. S. Oberfell, Industrial and Eng. Chem. News Edition. Vol. 22, No. 1, 10/1/44, pp. 30-2.)

Fuels (Aviation, High Octane).

324	21716	U.S.A.	... *Butane for Aircraft (New Light-Weight* 100 *Octane Engine Fuel).* (N. M. Jones, Flying, Vol. 34, No. 2, Feb., 1944, pp. 43-6, 156.)
325	21743	U.S.A.	... *Aviation Fuels for the Future.* (J. Randolph, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 58-60, 235-6.)
326	21893	U.S.A.	... *High Octane Fuels.* (R. H. Newton, Industrial Engineering and Chemistry News Edition, Vol. 22, No. 4, 25/2/44, pp. 248-9, 282.)
327	22291	U.S.A.	... *Aviation and Motor Gasolines after the war.* (B. K. Brown and D. P. Barnard, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44,, pp. 26-7, 68-71.)

Fuels (Solid, Powdered).

328	21177	G.B. ...	... *Coal Utilization.* (C. T. S. Arnett, Journal Institution of Electrical Engineers, Part I, Vol. 91, No. 38, Feb., 1944, pp. 73-6.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
329	21624	U.S.A.	... *Pulverised Coal for Forge Furnaces.* (R. B. Engelahl and F. E. Graves, A.S.M.E. Preprints, 1942, pp. 1-11.)
330	21626	U.S.A.	... *Domestic Stoker for Bituminous Coal.* (S. W. Guthrie, A.S.M.E. Preprints, 1942, pp. 1-5.)
331	21644	France	... *Wood Sugar as a Food and Source of Fuel.* (N. Berthelot, Science et Vie, Vol. 64, No. 314, Oct., 1943, pp. 171-178.)
332	21647	France	... *French Replacement Fuel for Transport Vehicles (liquid, solid, gas).* (N. Petit, Science et Vie, Vol. 64, No. 313, Sept., 1943, pp. 98-114.)
333	21930	G.B.	... ... *The Use of Unfamiliar Fuels.* (P. D. Kirkman, Engineer, Vol. 177, No. 4605, 14/4/44, pp. 294-6.)

Lubricants, Oils.

334	21362	G.B.	... ... *Cutting Oils—Their Purposes, Properties and Application.* (E. V. Paterson, Mechanical World, Vol. 115, No. 2984, 10/3/44, pp. 257-262.)
335	21918	G.B.	... ... *Lead Powder in Lubricants.* (Metal Industry, Vol. 64, No. 15, 14/4/44, p. 230.)

Testing and Analysis.

336	21348	U.S.A.	... *Test and Predicted Oil Cooler Performance.* (A. L. London and J. J. Brewster, Transaction of the A.S.M.E., Vol. 66, No. 1, Jan., 1944, pp. 73-80.)
337	21542	U.S.A.	... *An Evaluation of Quenching Oils.* (E. K. Spring, P. T. Lonsdale and C. W. Alexander, American Society for Metals Preprints 25th Annual Convention, Oct. 18th and 22nd, 1943, pp. 1-15.)
338	21669	G.B.	... ... *Standardization Committee: Reports of Sub-Committees* (Measurement and Sampling: Crude Oil: Liquefied Petroleum Gases, Gasolines, Kerosene and Light Distillates: Gas, Diesel and Fuel Oil: Engine Tests, Lubricants, Asphaltic Bitumen: Petroleum Waxes). (Journal of the Institute of Petroleum, Vol. 30, No. 242, Feb., 1944, pp. 25-51.)
339	21866	U.S.A.	... *Determination of Tetraethyllead in Gasoline.* (H. Gonick and J. J. Milano, Industrial Engineering and Chemistry (Analytical Ed.), Vol. 16, No. 1, 25/1/44, pp. 4-6.)
340	22037	U.S.A.	... *Hydrocarbons in the Gasoline Fraction of Seven Representative Crudes, including all the Distillates to 102° C. and the Aromatics to 160° C.* (A. F. Forziati and others, Journal of Research of the Nat. Bur. of Standards, Vol. 32, No. 1, Jan., 1944, pp. 11-37.)

THEORY OF ELASTICITY.

General.

341	21286	G.B.	... ... *Measurement of Displacement and Strain by Capacity Methods.* (B. C. Carter and others, Engineer, Vol. 177, No. 4602, 24/3/44, pp. 237-8.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
342	21534	U.S.A. ...	*Forced and Free Motion of a Mass on an Air Spring.* (B. Sussholz, A.S.M.E. Preprint, Nov. and Dec., 1943, pp. 1-7.)
343	21605	Germany ...	*The Position of Maximum Strain under Rolling Contact for Various Shapes of the Pressure Area.* (F. Kares, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 237-243.)
344	21617	U.S.A. ...	*Experimental Determination of the Isostatic Lines.* (A. J. Durelli, A.S.M.E. Preprints, June, 1942, pp. 1-6.)
345	21990	U.S.A. ...	*Plastic Flow and Creep.* (A. Hadai, Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 70-2.)
346	22024	U.S.A. ...	*Measurement of Dynamic Strain (Discussion).* (C. O. Dohrenwend and W. R. Mehaffey, Journal of Applied Mechanics, Vol. 11, No. 1. March, 1944, A-57/A-62.)
347	22071	Germany ...	*An Acoustical Method for Determining the Dynamic Compressibility and the Loss Factor of Elastic Materials (Resonance Displacement of Liquid Column on Immersion of Materials).* (E. Meyer and K. Tamm, A.Z., Vol. 7, No. 2, March, 1942, pp. 45-50.)
348	22213	U.S.A. ...	*Application of the Fourier Method to the Solution of Certain Boundary Problems in the Theory of Elasticity.* (Gerald Pickett, A.S.M.E. Preprint, June 16th, 1944 (16-17th June, 1944), pp. 1-7.)
			Beams, Columns, Structures.
349	21519	U.S.A. ...	*Axial Rigidity of Perforated Structural Members.* (N. Greenspan, Journal of Research National Bureau of Standards, Vol. 31, No. 6, Dec., 1943, pp. 305-322.)
350	21902	G.B.	*Strength of Shafts* (Torsional Tests on Shaft Ends). (T. A. Stoddart, Automobile Engineer, Vol. 34, No. 484, April, 1944, p. 145.)
351	22008	U.S.A. ...	*A Strain Energy Derivation of the Torsional-Flexural Buckling Loads of Straight Columns of Thin Walled Open Sections.* (N. J. Hoff, Applied Mathematics Quarterly, Vol. 1, No. 4, Jan., 1944, pp. 341-5.)
352	22009	U.S.A. ...	*Use of Sine Transform for Non Simply Supported Beams.* (A. G. Strandhagen, Applied Mathematics Quarterly, Vol. 1, No. 4, Jan., 1944, pp. 346-8.)
353	22010	U.S.A. ...	*The Treatment of Discontinuities in Beam Deflection Problems.* (C. L. Brown, Applied Mathematics Quarterly, Vol. 1, No. 4, Jan., 1944, pp. 351-369.)
354	22020	U.S.A. ...	*The Effects of Web Deformation on the Torsion of I-Beams.* (J. N. Goodier and M. H. Barton, Journal of Applied Mechanics, Vol 11, No. 1, March, 1944, A-35/A-40.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
355	22023	U.S.A.	... *Circular Beams Loaded Normal to the Plane of Curvature—II. (Cantilever Beam with Bending Moment Applied to Free End).* (M. B. Hogan, Journal of Applied Mechanics, Vol. 11, No. 1, March, 1944, A-51-56.)
356	22049	U.S.A.	... *Stability of Columns and Strings under Periodically Varying Forces.* (S. Lubkin and J. J. Stoker, Applied Mathematics Quarterly, Vol. 1, No. 3, No. 3, Oct., 1943, pp. 215-236.)
357	22281	U.S.A.	... *On Plane Rigid Frames Loaded Perpendicularly to their Plane.* (W. Prayer and G. E. Hay, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 49-60.)
			Plates, Shells, Cylinders.
360	21616	U.S.A.	... *The Photoclastic Analysis of Transverse Bending of Plates in the Standard Transmission Polariscope.* (D. C. Drucker, A.S.M.E. Preprints, June, 1942, pp. 1-4.)
361	21619	U.S.A.	... *Buckling of Rectangular Plates with Built-in Edges.* (S. Levy, A.S.M.E. Preprints, June, 1942, pp. 1-4.)
362	21819	U.S.A.	... *Stresses in Disc Wheels.* (W. Knight, S.A.E. Preprints, April 5-7th, 1944, pp. 1-11.)
363	22005	U.S.A.	... *The Intrinsic Theory of Thin Shells and Plates—Part I, General Theory.* (Wei Zang Chien, Applied Mathematics Quarterly, Vols. 1 to 4, Jan., 1944, pp. 297-327.)
364	22016	U.S.A.	... *Stress Coefficients for Rotating Discs of Conical Profile.* (K. E. Bishopp, Journal of Applied Mechanics, Vol 11, No. 1, March, 1944, A-1/A-9.)
365	22040	U.S.A.	... *On the Deflection of Anistropic Thin Plates.* (V. Morkovin, Applied Mathematics Quarterly, Vol. 1, No. 2, July, 1943, pp. 116-129.)
366	22282	U.S.A.	... *On the Vibrations of a Clamped Plate under Tension.* (A. Weinstein and Wei Zang Chien, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 61-8.)
			Notched Bar Tests.
367	21365	G.B. ...	... *Notched Bar Testing in Cold Weather.* (Mechanical World, Vol. 115, No. 2984, 10/3/44, p. 272.)
368	21508	G.B. ...	... *Interpretation of the Notched Bar Impact Tests.* (P. W. Rowe, Engineer, Vol. 177, No. 4603, 31/3/44, pp. 247-8.)
369	22019	U.S.A.	... *Relations between the Notched Beam Impact Test and the Static Tension Test.* (C. W. MacGregor and J. C. Fisher, Journal of Applied Mechanics, Vol 11, No. 1, March, 1944, A-28/A-33.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Miscellaneous Tests.
370	21433	Germany ...	*Elastic Deformation and Load Distribution of Straight Spur Gears when Two Pairs of Flanks are in Engagement.* (F. Karas, V.D.I. Forschungsheft, No. 406, Jan., 1941, pp. 1-17.)
371	21561	U.S.A. ...	*The Stress Distribution at the Neck of a Tension Specimen.* (P. W. Bridgman, American Society for Metal Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-20.)
372	21618	U.S.A. ...	*Calculation of Load and Stoke in Oil Well Pump Rods.* (B. F. Langer and E. H. Lamberger, A.S.M.E. Preprints, June, 1942, pp. 1-12.)
373	21620	U.S.A. ...	*An Analytical Method for Determining the Flexibility of Piping having Two or More Anchorages.* (Harry Miller, A.S.M.E. Preprints, June, 1942, pp. 1-6.)
374	21634	U.S.A. ...	*Load Relations in Bolted Joints.* (T. J. Dolan, A.S.M.E. Preprints, 1942, pp. 1-5.)
			Photo-Elasticity.
375	21903	G.B.	*Photo-Elasticity—An Optical Method of Experimental Stress Analysis.* (Automobile Engineer, Vol. 34, No. 48, April, 1944, p. 146.)
376	22025	U.S.A. ...	*Proceedings of the Society for Experimental Stress Analysis—Vol. 1, No. 1 (Book Review) (Papers Presented at the 17th Eastern Photo-elasticity Conference).* (Journal of Applied Mechanics, Vol. 11, No. 1, March, 1944, A-63-4.)
377	28017	U.S.A. ...	*Studies in Three-Dimensional Photo-elasticity (Stress in Bent Circular Shafts with Transverse Holes).* (M. M. Frocht, Journal of Applied Mecanics, Vol. 11, No. 1, March, 1944, A-10/A-16.)

MATERIALS (PROPERTIES, FABRICATION, INSPECTION).

A. Properties.

General.

378	21390	Germany ...	*New German Restrictions on the Manufacture and Utilisation of Alloys.* (Schaffende Heimat, Vol. 12, No. 4, 25/1/44, p. 4.)
379	21984	U.S.A. ...	*Materials—Handling Problems in Industry.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 61-63.)
380	21987	U.S.A. ...	*Refrigerated Metals.* (Scientific American, Vol. 70, No. 2, Feb., 1944, pp. 67-9.)

Al. and Mg. Alloys.

381	21174	G.B.	*Summary of Literature on Fatigue and Static Strength of Light Alloys, with particular reference to Stress Raisers and Elongation (Prepared by the R.A.E.).* (R.T.P. 3, Bibliography, No. 104, Jan., 1944.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
382	21194	U.S.A.	...	*Aluminium Research Produces 25 Alloys.* (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 33-69.)
383	21213	Germany	...	*Strength Characteristics of Al-Cu-Mg Wrought Alloys containing only 2 per cent. Cu.* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 46.)
384	21240	G.B. ...	...	*Aluminium in the Canning Industry.* (Light Metals, Vol. 7, No. 74, March, 1944, pp. 107-116.)
385	21245	G.B. ...	...	*Future of Light and Ultra Light Alloys.* (Light Metals, Vol 7, No. 74, March, 1944, pp. 151-4.)
386	21272	G.B. ...	...	*Strength of Light Alloy Components.* (J. L. Beilschmidt, Aircraft Engineering, Vol. 16, No. 161, March, 1944, pp. 76-81.)
387	21497	U.S.A.	...	*Production of Magnesium under High Vacuum.* (Industrial Engineering Chemistry News Edition, Vol. 22, No. 3, 10/2/44, p. 188.)
388	21502	G.B. ...	...	*Wrought Aluminium Alloys* (An Investigation of High Temperature Properties). (Metal Industry, Vol. 64, No. 13, 31/3/44, p. 200.)
389	21666	G.B. ...	...	*Notes on Magnesium Alloy Technology.* (F. A. Fox, Engineering, Vol 157, No. 4081, 31/3/44, pp. 257-260.)
390	21685	Germany	...	*Distribution of Shear Strength of Spot Welds in Various Aluminium Alloys* (from Z. für Metallkunde, Vol. 134, Aug., 1942, pp. 187-93). (F. Bollenrath and V. Hauk, Sheet Metal Industries, Vol. 19, No. 204, pp. 689-693, 704.)
391	21884	G.B. ...	...	*Aluminium in the Post-War Years.* (W. C. Devereux, Engineer, Vol. 177, No. 4604, 7/4/44, p. 276.)
392	21891	G.B. ...	...	*Notes on Magnesium Alloy Technology.* (F. A. Fox, Engineering, Vol. 157, No. 4082, 7/4/44, pp. 278-280.)
393	22211	U.S.A.	...	*Aluminium Research.* (F. J. Van Antwerpen, Industrial and Eng. Chem. News Edition, Vol. 22, No. 1, 10/1/44, pp. 34-7.)
394	22236	Germany	...	*Copper Free Aluminium Alloys* (Abstract of Z.V.D.I. Paper). (P. Brenner, Metal Industry, Vol. 64, No. 16, 21/4/44, p. 248.)
395	22237	Germany	...	*Cavitation of Materials* (Al, Mg. and Zinc) (From the German). (H. Nowotny, Metal Industry, Vol. 64, No. 16, 21/4/44, p. 248.)
				Iron and Steel.
396	21317	Germany	...	*Iron Silicon Alloy of High Initial Permeability* (Digest) (From Z.V.D.I., Vol. 87, Nos. 35-6, Sept. 4th, 1943, pp. 572-3). (Engineers' Digest, Vol. 5, No. 1, Jan., 1944, p. 26.)
397	21354	G.B. ...	...	*The Economical Use of High Speed Steel.* (J. Farmer, Machinery, Vol. 64, No. 1639, 9/3/44, pp. 259-262.)
398	21396	Germany	...	*The Employment of Thomas Steel in Locomotives.* (Schaffende Heimat, Vol. 12, No. 5, 30/1/44, p. 5.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
399	21547	U.S.A. ...	*The Effect of Varying Amounts of Martensite upon the Isothermal Transformation of Austenite remaining after Controlled Quenching.* (H. J. Elmendorf, American Society for Metals Preprints 25th Annual Convention. Oct. 18th to 22nd, 1943, pp. 1-21.)
400	21548	U.S.A. ...	*Martensite Reactions in Alloy Steel.* (P. Payson and C. H. Savage, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-16.)
401	21549	U.S.A. ...	*Influence of Nickel, Molybdenum, Cobalt and Silicon on the Kinetics and Ar" Temperatures of the Austenite to Martensite Transformation in Steels.* (H. H. Chiswik and A. B. Greninger, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-35.)
402	21551	U.S.A. ...	*The Effect of Heat Treatment and Carbon Contents on the Work Hardening Characteristics of Several Steels.* (P. E. Hollomon, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-10.)
403	21552	U.S.A. ...	*The Tensile Properties of Alloyed Ferrites.* (C. E. Lacy and M. Gensamer, American Society for Metals Preprints 25th Anunal Convention, Oct. 18th to 22nd, 1943, pp. 1-19.)
404	21554	U.S.A. ...	*The Action of Carbonate Catalysts in the Carburization of Steel.* (T. C. Fong and R. A. Ragatz, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-28.)
405	21555	U.S.A. ...	*The Isothermal Transformation of Case-Carburized S.A.E. 4815 Steel.* (J. R. Cruciger and J. E. Vilella, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-14.)
406	21560	U.S.A. ...	*Effect of Time, Temperature and Prior Structure on the Hardenability of Several Alloy Steels.* (J. Welchner, E. S. Rowland and J. N. Ubben, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-30.)
407	21563	U.S.A. ...	*The Strength of Heat-Treated Alloy Steel Bolts.* (G. Sachs, P. S. Cole and R. A. Roth, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-11.)
408	21564	U.S.A. ...	*The Emissivity of Molten Stainless Steels.* (G. N. Goller, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-13.)
409	21565	U.S.A. ...	*Quenching Rate Versus Graphite Formation in Prequenched White Cast Iron.* (C. W. Simmons, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-11.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
410	21566	U.S.A.	...	*Pseudomorphs of Pearlite in Quenched Steel.* (O. W. Ellis, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-11.)
411	21567	U.S.A.	...	*Structural Changes during the Tempering of High Carbon Steel.* (D. P. Antia, S. G. Fletcher, M. Cohen, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943.)
412	21568	U.S.A.	...	*The Effect of Carbon on the Tempering of Steel.* (S. G. Fletcher and M. Cohen, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-26.)
413	21569	U.S.A.	...	*The Tempering of Nickel and Nickel-Molybdenum Steels.* (D. P. Antia and M. Cohen, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-17.)
414	21570	U.S.A.	...	*Effect of Quenching-Bath Temperature on the Tempering of High Speed Steel.* (P. Gordon, M. Cohen, R. S. Rose, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-31.)
415	21572	U.S.A.	...	*An Optimum Silicon Range in Plain and 2.0 per cent. Chromium Cast Irons Exposed to Elevated Temperatures.* (C. O. Burgess and R. W. Bishop, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-23.)
416	21573	U.S.A.	...	*Creep Strength, Stability of Microstructure and Oxidation Resistance of Cr.-Mo. and 18 Cr.-8 Ni Steels.* (R. F. Miller, W. G. Benz and N. J. Day, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-22.)
417	21625	U.S.A.	...	*Cold Rolled Stainless Steels in Aircraft.* (R. Franks and W. O. Binder, A.S.M.E. Preprints, 1942, pp. 1-10.)
418	21636	U.S.S.R.	...	*Heat Effects in High Annealing Tempered Steels.* (Abramouitch and others, J. Tech. Phys. U.S.S.R., Vol. XI, No. 12, 1941, pp. 1083-1086.)
419	21702	G.B. ...	...	*Some Remarks on Tool Steel.* (E. J. Raybould, Mechanical World, Vol. 115, No. 2985, 17/3/44, pp. 300-1.)
420	21814	U.S.A.	...	*Introduction of Work Simplification in the Steel Industry.* (A. H. Roosma, A.S.M.E. Preprints, April 3-5th, 1944, pp. 1-7.)
421	21877	U.S.A.	...	*Stainless Steels—Hot and Otherwise* (Columbium—and Titanium Stabilized Steels for Aircraft Exhaust Systems, etc.). (H. A. Campbell, S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 67-72.)
422	21911	G.B. ...	...	*Ledloy Steels* (Cutting Speed and Horsepower Consumption Calculator for use with these Steels). (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 162.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
423	21914	G.B.	... ...	*Steel Specification* (American Developments) (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 130.)
424	21932	G.B.	... ...	*Hardenability of Steel.* (Engineer, Vol. 177, No. 4605, 14/4/44, p. 296.)
425	21998	U.S.A.	...	*Grey Iron—Its Advantages.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 83-4.)
426	22235	G.B.	... ...	*Diffusion in Alclad Sheet—Metallurgical Changes Caused by Heat Treatment.* (F. Keller and R. H. Brown, Metal Industry, Vol. 64, No. 16, 21/4/44, pp. 245-8.)
427	22067	G.B.	... ...	*Research in the Iron and Steel Industry.* (Engineering, Vol. 157, No. 4083, April 14th, 1944, p. 295.)
				Non-Ferrous Metals.
428	21136	G.B.	... ...	*Platinum and Allied Metals—Uses in Industry.* (Times Trade and Engineering, Vol. 54, No. 958, Dec., 1943, p. 28.)
429	21246	G.B.	... ...	*The International Mercury Situation (A Statistical Survey of World Resources).* (E. R. Varley, Metal Industry, Vol. 64, No. 12, March 24th, 1944.)
430	21247	G.B.	... ...	*Secondary Copper Base Materials* (The Treatment of Copper Base Residues). (R. J. Miller, Metal Industry, Vol. 64, No. 12, 24/3/44, pp. 181-4.)
431	21455	G.B.	... ...	*The Fabrication of Beryllium Copper Sheet and Strip.* (L. B. Hunt, Reprint Sheet Metal Industries, Nov., 1942, pp. 1-9.)
432	21550	G.B.	... ...	*Metallurgy and Uses of Beryllium-Copper Alloys, 1938 to date* (Sci. Lib. Bib. 603). (Science Library Bibliographical Series, Nos. 601, 603, 602, 604.)
433	21571	U.S.A.	...	*An Emergency Heat Resistant Alloy.* (O. E. Harder and J. T. Gow, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-67.)
434	21637	U.S.S.R.	...	*Structural Changes in Cu-Ni-Fe Alloys.* (Lifshitz and Rachstadt, T. Tech. Phys. U.S.S.R., Vol. XI, No. 12, 1941, pp. 1036-1108.)
435	21864	U.S.A.	...	*Copper Soaps as Rot Proofing Agents on Fabrics.* (P. B. Marsh and others, Industrial Engineering Chemistry (Indust. Ed.), Vol. 36, No. 2, Feb., 1944, pp. 176-181.)
436	22238	G.B.	... ...	*Economics of Non-Ferrous Metals.* (Metal Industry, Vol. 64, No. 16, 21/4/44, pp. 249-250.)
437	22244	G.B.	... ...	*Electro-Thermal Zinc.* (A. G. Arend, Electrician, Vol. 132, No. 3437, 14/4/44, pp. 317-319.)
				Plastics and Resins.
438	21117	G.B.	... ...	*Reinforced Laminates and Plastics Heater Panels.* (British Plastics, Vol. 16, No. 178, March, 1944, pp. 97-102.)

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439	21119	G.B.	...	*Plastics and their Place in Post-War Building.* (H. H. Lusty, British Plastics, Vol. 16, No. 178, March, 1944, pp. 116-118.)
440	21120	G.B.	...	*Resin Binder for Steel Castings.* (British Plastics, Vol. 16, No. 178, March, 1944, p. 118.)
441	21121	G.B.	...	*Polyvinyl Alcohol—Part III. Its Chemistry and Applications.* (J. I. Jones, British Plastics, Vol. 16, No. 178, March, 1944, pp. 122-9.)
442	21122	G.B.	...	*Developments in Amino Plastics.* (K. M. Chance, British Plastics, Vol. 16, No. 178, March, 1944, pp. 134-140.)
443	21123	G.B.	...	*Use of By-Products of Coal for Plastics.* (H. Levinstein, British Plastics, Vol. 16, No. 178, March, 1944, pp. 130, 133.)
444	21147	G.B.	...	*Bending Plastics (Cycleweld Process).* (V. E. Yarsley, Times Trade and Engineering, Vol. 54, No. 958, Dec., 1943, p. 44.)
445	21159	G.B.	...	*Plastics—The Year's Developments.* (P. E. Yarsley, Times Trade and Engineering, Vol. 54, No. 959, Jan., 1944, p. 44.)
446	21338	G.B.	...	*The Application of 'Stellite' to Worn Valve Seats.* (Engineering, Vol. 157, No. 4080, March, 1944, p. 240.)
447	21342	U.S.A.	...	*Physical Properties of a Structural Plastic Material MR—1A Fiberglass Laminates for Airplane (Structural Application).* (C. Armstrong, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, pp. 135-138.)
448	21391	Germany	...	*The History of Vulcan Fibre.* (Schaffende Heimat, Vol. 12, No. 4, 25/1/44, p. 5.)
449	21404	Germany	...	*Synthetic Resin Dies.* (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 371.)
450	21646	France	...	*French Home-Grown Vegetable Fibre as a Source of Cellulose.* (J. Francis, Science et Vie, Vol. 64, No. 316, Dec., 1943, pp. 256-261.)
451	21648	France	...	*Artificial Textiles (Rayon, Fibron).* (A. Milhuser, Science et Vie, Vol. 64, No. 313, Sept., 1943, pp. 118-132.)
452	21875	U.S.A.	...	*Characteristics of Plastics as Engineering Materials (with Special Reference to Plexiglas).* (W. Bartoe and D. S. Frederick, S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 54-61.)
453	21886	G.B.	...	*Substitutes for Silk Insulation of Fine Wires—I.* (A. Brokes, Engineering, Vol. 157, No. 4082, 7/4/44, pp. 263-4.)
454	21910	G.B.	...	*Plastics—Their Application to Road Vehicles.* (F. Walls and J. E. Sisson, Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 157-162.)
455	21922	U.S.A.	...	*Polyvinyl Alcohol—Versatile Plastic.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 76-7.)
456	21994	U.S.A.	...	*New Elasto Plastic* (Marvinol). (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 79-80.)

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457	22002	U.S.A.	...	*Plastic Board* (Light in Weight and Easily Formed). (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 86.)
458	22028	G.B. ...	...	*Uses of Nylon Rope.* (British Plastics, Vol. 16, No. 179, April, 1944, p. 153.)
459	22029	G.B. ...	...	*Zein—An Agricultural Product for Plastics.* (British Plastics, Vol. 16, No. 179, April, 1944, p. 155.)
460	22030	G.B. ...	...	*Plastics Reduce Weight of Tank Compasses.* (British Plastics, Vol. 16, No. 179, April, 1944, p. 157.)
461	22031	G.B. ...	...	*The All-Plastics House.* (J. C. Clavering, British Plastics, Vol. 16, No. 179, April, 1944, pp. 158-160.)
462	22032	G.B. ...	...	*Self-Sterilized Plastics (for Containers, etc.) (Addition of Metallic Silver to the Unpolymerised Plastics Resin.* (British Plastics, Vol. 16, No. 179, April, 1944, p. 160.)
463	22034	G.B. ...	...	*The Structure of Synthetic Resins.* (P. Koslov, British Plastics, Vol. 16, No. 179, April, pp. 168-9.)
464	22036	G.B. ...	...	*The Technology of Plastics (Courses of Study in Plastics).* (British Plastics, Vol. 16, No. 179, April, 1944, pp. 172-182.)
465	22062	G.B. ...	...	*Substitutes for Silk Insulation of Fine Wires—II.* (A. Brookes, Engineering, Vol. 157, No. 4083, April 14th, 1944, pp. 281-3.)
466	22068	U.S.A.	...	*Gutta Percha and Balata in the Manufacture of Submarine Cables.* (J. N. Dean, Engineering, Vol. 157, No. 4083, April 14th, 1944, pp. 296-7.)
467	22081	G.B. ...	...	*Setting Time of Synthetic Glues* (Bulletin of Aero Research, Ltd.). (Plastics, Vol. 8, No. 83, April, p. 153.)
468	22082	G.B. ...	...	*Metallizing Plastics (Vacuum Evaporation of Metals).* (E. E. Hals, Plastics, Vol. 8, No. 83, April, pp. 154-165.)
469	22083	Switzerland	...	*Fact and Fancy in Modern Plastics Design* (Guide to Modern Practice in Thermosetting Resins) (from Schweizer Archiv, 1943, No. 9, p. 360). (Tschudi, Plastics, Vol. 8, No. 83, April, pp. 176.)
470	22084	G.B. ...	...	*The Characteristics of the Phenolic Laminates.* (D. W. Brown, Plastics, Vol. 8, No. 83, April, pp. 177-186.)
471	22085	G.B. ...	...	*Designing for Plastic Moulding—II.* (W. M. Halliday, Plastics, Vol. 8, No. 83, April, pp. 188-192.)
472	22086	G.B. ...	...	*Resinoids and Other Plastics as Film Formers, XXIII Coating Media on Vinyl Acetate and Polyvynl Alcohol Base.* (B. J. Brajnikoff, Plastics, Vol. 8, No. 83, April, pp. 193-8.)
473	22087	G.B. ...	...	*Creep Path and Water Permeability of Organic Insulating Materials* (from Schweizer Archiv, 1943, No. 9, p. 314). (S. Bedert and Frischmat, Plastics, Vol. 8, No. 83, April, p. 168.)

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474	22106	U.S.A.	... *Tenite Plastic Pellets used to Remove Carbon from Piston Walls.* (Automotive and Aviation Industries, Vol. 30, No. 4, Feb. 15th, 1944, p. 88.)
475	22181	Canada	... *Venturi Tube Made of Plastic.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, pp. 108-9.)
			Rubber (Nat. and Syn.).
476	21436	G.B. ...	... *Effect of Temperature on the Mechanical Properties of Rubberlike Materials.* (W. P. Fletcher, Nature, Vol. 155, No. 3881, 18/3/44, pp. 341-342.)
477	21678	G.B. ...	... *The Effectiveness of Shear-Stressed Rubber Compounds in Isolating Machinery Vibration.* (B. C. Madden, Sheet Metal Industries, Vol. 19, No. 204, pp. 663-4, 668.)
478	21700	G.B. ...	... *Rubber, Synthetic and Natural.* (Mechanical World, Vol. 115, No. 2985, 17/3/44, pp. 296-7, 302.)
479	21856	U.S.A.	... *Solubility and Diffusion of Sulphur in Synthetic Elastomers.* (A. R. Kemp and others, Industrial Eng. Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, pp. 109-113.)
480	21857	U.S.A.	... *Unsaturation of Polyisobutylenes and Butyl Rubber.* (J. Rherner, Industrial Eng. Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, pp. 118-124.)
481	21858	U.S.A.	... *Behaviour of Blacks in Rubber* (Effect of Banbury Mixing). (I. Drogin and others, Industrial Eng. Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, p. 124.)
482	21859	U.S.A.	... *Reinforcement of Butyl Rubber* (The Role of Carbon Black Surface Chemistry). (R. L. Zapp, Industrial Eng. Chemistry, Vol. 36, No. 2 (Industrial Ed.), Feb., 1944, pp. 128-133.)
483	21892	U.S.A.	... *Canadian Government Opens Sarnia Rubber Plant.* (F. J. van Antwerpen, Industrial Engineering and Chemistry News Edition, Vol. 22, No. 4, 25/2/44, pp. 240-3.)
484	21983	U.S.A.	... *What About Synthetic Tyres?* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 58-60.)
485	21999	U.S.A.	... *Uzkol—New Synthetic Rubber.* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 84.)
			Wood and Synthetics.
486	21270	G.B. ...	... *The Elasticity of Plywood.* (H. Roberts, Aircraft Engineering, Vol. 16, No. 181, March, 1944, pp. 68-72.)
487	21330	G.B. ...	... *Electro-Gluing Structural Timber.* (Electrical Times, Vol. 105, No. 2734, March, 1944, p. 324.)
488	21344	U.S.A.	... *The Differential Shrinkage of Wood.* (W. L. Greenhill, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, p. 152-4.)
489	21356	U.S.A.	... *Wood Cloth and Wood Paper Laminates.* (J. Delmonte, Transaction of the A.S.M.E., Vol. 66, No. 1, Jan., 1944, pp. 55-9.)

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490	21384	Germany	...	*Metal Armoured Plywood (Resin Glue Joint).* (Schaffende Heimat, Vol. 12, No. 1, 6/2/44, pp. 1-2.)
491	21393	Germany	...	*Possible Use for Lignin.* (Schaffende Heimat, Vol. 12, No. 4, 25/1/44, p. 6.)
492	21397	Germany	...	*Improving the Life of Wooden Posts (Fencing).* (Schaffende Heimat, Vol. 12, No. 5, 30/1/44, p. 7.)
493	21434	G.B. ...	...	*Timber Drying Kilns.* (Nature, Vol. 153, No. 3881, 18/3/44, pp. 339-340.)
494	21599	G.B. ...	...	*Plywood and Plastics. The Thaden (indirect heating) and Gallay Glueing Process* (direct heating of film rendered conducting by carbon black). (L. Nichols, Flight, Vol. 45, No. 1841, 6/4/44, pp. 371-374.)
495	21862	U.S.A.	...	*Plywood Bonding.* (H. Grinsfelder and M. R. Collins, Industrial Eng. Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, pp. 152-7.)
496	22015	Germany	...	*Investigations on the Density and Shrinkage of Sap and the Coniferous Wood.* (E. Vintila, Doctor Dissertation, Munich University.)
497	22026	G.B. ...	...	*Prefabrication and Plywood (Strength Tests on Columns and Beams).* (British Plastics, Vol. 16, No. 179, April, 1944, pp. 144-7.)
498	22130	G.B. ...	...	*Testing Wood Preservatives.* (Nature, Vol. 153, No. 3884, 8/4/44, p. 44.)
499	22176	Canada	...	*Fabrication of Plywood Panels.* (B. S. Larsseen, Canadian Aviation, Vol. 17, No. 2, Feb., 1944, pp. 78-80.)
				Glass and Ceramics.
500	21149	G.B. ...	...	*The Glass Industry.* (Times Trade and Engineering, Vol. 54, No. 959, Jan., 1944, pp. 10.)
501	21395	Germany	...	*The Employment of Ceramic Material in the Chemical Industry.* (Schaffende Heimat, Vol. 12, No. 5, 30/1/44, pp. 3-4, 6-7.)
502	21526	G.B. ...	...	*Glass for Heat and Sound Insulation* (1934 *to date*) (Sci. Lib. Bib., 601). (Science Library Bibliographical Series, Nos. 601, 603, 602, 604.)
503	21649	U.S.A.	...	*Types of Fiberglass.* (The Review of Scientific Instruments, Vol. 15, No. 1, Jan., 1944, p. 16.)
504	22035	G.B. ...	...	*Synthetic Optical Material—'Transpex.'* (British Plastics, Vol. 16, No. 179, April, 1944, pp. 170-1.)
505	22199	G.B. ...	...	*The Technique of Glass Manipulation—Part I.* (G. A. Percival, Electronic Engineering, Vol. 16, No. 194, April, 1944, pp. 453-7.)
				Silver and Diamonds.
506	21336	G.B. ...	..	*The Cold-Setting of Diamonds for Tools.* (Engineering, Vol. 157, No. 4080, March, 1944, p. 236.)
507	21759	U.S.A.	...	*Low Temperature Silver Brazing Alloys.* (Aero Digest, Vol. 44, No. 2, 15/1/44, p. 156.)

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508	21917	G.B. ...	*Rare and Precious Metals—Increased Use in the Electrical and Electronic Fields.* (E. M. Wise, Metal Industry, Vol. 64, No. 15, 14/4/44, pp. 229-230.)
			Concrete.
509	22247	G.B. ...	*Electrical Compacting of Concrete.* (Electrical Times, Vol. 105, No. 2738, 13/4/44, p. 430.)
			Paints, Varnishes.
510	21200	U.S.A.	*Arco Microknife Measures and Records the Scratch Hardness and Adhesion of Paint Films.* (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 56-8.)
511	21287	G.B. ...	*The Measurement of Strain in Components of Complicated Forms of Brittle Lacquer Coatings.* (W. J. Clenshaw, Engineer, Vol. 117, No. 4602, 24/3/44, pp. 222-3.)
512	21498	G.B. ...	*Protection Afforded to Steels by Paints Made with Zinc Dust.* (P. M. Fisk, Chemistry and Industry, No. 14, 1/4/44, pp. 135-6.)
513	21514	G.B. ...	*Temperature Indicating Paints.* (L. C. Tyte, Engineer, Vol. 177, No. 4603, 31/3/44, p. 258.)
514	21615	U.S.A.	*Brittle Coatings for Quantitative Strain Measurements.* (A. V. de Forest, G. Ellis and F. B. Stern, A.S.M.E. Preprints, June, 1942, pp. 1-5.)
515	21676	G.B. ...	*Phosphate Coated and Lacquered Steel Sheet as used for Food Can Manufacture.* (L. Schuster, Sheet Metal Industries, Vol. 19, No. 204, pp. 635-8, 640.)
516	21677	G.B. ...	*Metal Colouring: Decorative and Light-Duty Finishes.* (H. Silman, Sheet Metal Industries, Vol. 19, No. 204, pp. 653-662.)
517	21682	G.B. ...	*Solder Creams and Solder Paints.* (Sheet Metal Industries, Vol. 19, No. 204, p. 684.)
518	21861	U.S.A.	*Urea-Formaldehyde Water-Thinned Paint* (Effect of Certain Pigments on Resin Cure). (J. K. Wise, Industrial Eng. Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, pp. 144-7.)
519	21863	U.S.A.	*Durability of Lustreless Enamels.* (S. E. Beck, Industrial Engineering Chemistry (Industrial Ed.), Vol. 36, No. 2, Feb., 1944, pp. 157-8.)
			General Properties, including Corrosion.
520	21171	U.S.A.	*Hardness (Critical Examination of Hardess, Dynamic Hardness, and an Attempt to Reduce Hardness to Dimensional Analysis) (Published by the Nitralloy Corporation, New York, 1943).* (D. Landau, 1943, p. 100.)
521	21221	Holland	*The Permeability of Balloon Fabrics Towards H_2.* (H. L. Van Novhvys, Nelliand Textilberichte, Vol. 24, No. 12, Dec., 1943, pp. 507-511.)
522	21251	G.B. ...	*Inhibition of Corrosion (Use of Sodium Metalilicate, etc.).* (Metal Industry, Vol. 64, No. 12, 24/3/44, p. 188.)

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523	21276	G.B.	*The Conversion of Hardness Values.* (E. Skery, Aircraft Engineering, Vol. 16, No. 181, March, 1944, p. 89.)
524	21457	U.S.A. ...	*The Electrochemistry of Corrosion—Part II.* (C. L. Bulow, Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 631-3, 656.)
525	21546	U.S.A. ...	*Plastic Flow and Rupture of Metals.* (G. Zener and J. H. Hollomon, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-53.)
526	21557	U.S.A. ...	*Order Hardening: Its Mechanism and Recognition.* (D. Harker, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-26.)
527	21574	U.S.A. ...	*Intercrystalline Cohesion of Metals.* (E. R. Parker, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-11.)
528	21578	G.B.	*Non-Ferrous Foundry Refractories—Furnace Requirements in Relation to Properties.* (M. H. Berns, Metal Industry, Vol. 64, No. 14, 7/4/44, pp. 217-8.)
529	21630	U.S.A. ...	*Some Mechanical Properties of Plastics and Metals Under Sustained Vibrations.* (B. J. Lazen, A.S.M.E. Preprints, 1942, pp. 1-11.)
530	21631	U.S.A. ...	*The Corrosion of Stressed Alloy Steel Bars by High Temperature Steam.* (H. L. Solberg, A. A. Potter, G. A. Hawkins, J. T. Agnew, A.S.M.E. Preprints, 1942, pp. 1-6.)
531	21809	G.B.	*The Corrosion of Aluminium Welds in Nitric Acids.* (W. L. Hall and E. G. West, Institute of Welding Transactions, Vol. 7, No. 1, March, 1944, pp. 30-7.)
532	21915	G.B.	*Non-Ferrous Chemical Plant—Corrosion Resistance of Weld Deposit and Parent Metal.* (W. K. B. Marshall, Metal Industry, Vol. 64, No. 15, 14/4/44, pp. 226-8.)
533	21925	G.B.	*Corrosion Research.* (Engineer, Vol. 177, No. 4605, 14/4/44, p. 285.)

B. Fabrication.

Welding (Arc, Spot, etc.).

534	21249	G.B.	*Welding of Non-Ferrous Metals.* (Metal Industry, Vol. 64, No. 12, 24/3/44, p. 186.)
535	21450	Switzerland ...	*Swedish Arc Welding Competition.* (Inter Avia, No. 903, 21/1/44, p. 13.)
536	21537	Germany ...	*Resistance Butt Welding of Stranded Cables.* (W. Junther, E.T.Z., Vol. 63, Dec., 1942, pp. 587-591.)
537	21539	Germany ...	*The Welding of Thermoplastics (Digest).* (A. Hemming, E.T.Z., Vol. 63, Dec., 1942, pp. 594-595.)

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538	21654	G.B.	... ...	*Resistance Welding. No. 1 Processes and Machines* (Including Study of the Upset Butt and Flash Butt Processes) (Metals Alloys, Vol. 18, 1943, Sept.. pp. 518-524). (K. Rose, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, p. 28.)
539	21655	G.B.	... ...	*Spot Weld Efficiency for Aluminium Alloys* (Welding Journal U.S.A., Vol. 22, 1943, Oct. Supp., pp. 528-532). (C. W. Steward, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, pp. 29-30.)
540	21657	G.B.	... ...	*The Flash Welding of Nickel and High Nickel Alloy Rod* (Welding Journal, U.S.A.. Vol. 22, 1943, Oct. Supp., pp. 532-544). (W. F. Hess and A. Muler, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, p. 48.)
541	21687	G.B.	... ...	*Electric Flash-Welding System* (*British Patent No.* 558506). (Sheet Metal Industries, Vol. 19, No. 204, p. 694.)
542	21688	G.B.	... ...	*Dual Pressure Systems as Applied to Resistance Welding Machines.* (S. W. Humphrey, Sheet Metal Industries, Vol. 19, No. 204, pp. 695-700, 704.)
543	21802	G.B.	... ...	*Welding Research and Development in the U.S.A.* (H. W. G. Hignett, Institute of Welding, Vol. 6, Nos. 3-4, July-Oct., 1943, pp. 99-104.)
544	21803	G.B.	... ...	*Third Interim Report on the Investigation of the Welding of Ships Structures.* (Institute of Welding, Vol. 6. Nos. 3-4, July-Oct., 1943, pp. 105-119.)
545	21804	G.B.	... ...	*The Influence of Welding Defects on the Resistance to Fatigue of Welded Steel Joints* (A Critical Review of Technical Literature). (J. Dearden, Institute of Welding, Vol, 6, Nos. 3-4, July-Oct., 1943, pp. 120-2.)
546	21806	G.B.	... ...	*Welding of Aluminium for the Chemical Industry.* (F. H. Keating and G. Haim, Institute of Welding, Vol. 6, Nos. 3-4, July-Oct., 1944, pp. 135-143.)
547	21807	G.B.	... ...	*Welding as Applied to Track Work on the L.M.S. Railway* (Reference to Flash Butt Welding). (N. W. Swinerton and H. O'Neill, Institute of Welding Transaction, Vol. 7, No. 1, March, 1944, pp. 1-15.)
548	21808	G.B.	... ...	*Some Notes on the Welding of Non-Ferrous Metals.* (N. P. Inglis, Institute of Welding Transactions, Vol. 7, No. 1, March, 1944, pp. 16-29.)
549	21965	U.S.A.	...	*Refrigerated Welding Tips Save Time and Money.* (Aviation, Vol. 43, No. 1, Jan., 1944, p. 189.)
550	22151	G.B.	... ...	*Electric Resistance Welding* (Abstract). (L. B. Wilson, The Electrician, Vol. 132, No. 3435, 31/3/44, p. 279.)
551	22166	G.B.	... ...	*Electric Resistance Welding* (Abstract). (L. B. Wilson, Electrical Times, Vol. 105, No. 2736, 30/3/44, p. 375.)

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			Heat Treatment.
552	22246	G.B.	*Thermal-Demand Indicators on Intermittent Loads (Application to Resistance - Welding).* P. Schiller, Electrical Times, Vol. 105, No. 2738, 13/4/44, pp. 429-430.)
553	22268	G.B.	*Philips Light Alloy Spot Welder.* (Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 354-355.)
554	21214	Germany ...	*Possibility of Heat Treating Steel Immediately After Rolling.* (R. Schafer and W. Brechaler, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, pp. 47-50.)
555	21243	France ...	*Foundry Techniques for Aluminium and Magnesium* (Review of Recent French publication). (Light Metals, Vol. 7, No. 74, March, 1944, pp. 125-6.)
556	21248	G.B.	*Metal Run-outs in Magnesium Foundries* (Recommended Preventive Measures). (S. H. Hirst, Metal Industry, Vol. 64, No. 12, 24/3/44, pp. 185-6.)
557	21250	G.B.	*Gas Fired Heat Treatment Furnaces.* (Metal Industry, Vol. 64, No. 12, 24/3/44, pp. 187-8.)
558	21305	Switzerland ...	*Notes on the Heat Treatment of Gray Cast Iron (Digest) (From Schweizer Archiv fur Angewandte Wissenschaft und Technik, Vol. 19, No. 5, May, 1943, pp. 148-156.)* (M. Bads, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 3-5.)
559	21306	Germany ...	*The Sulphur Content of Carburising Compounds in Electric Carburizing Furnace Operation (Digest) (from Fertigunestechnik, No. 4, July, 1943, pp. 92-4).* (K. Wohlgemuth, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 5-6.)
560	21359	U.S.A. ...	*Some Effects of Heat Treatment on Low Alloy Titanium Steels.* (G. F. Comstock, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-14.)
561	21386	Germany ...	*Reducing Steel Requirement by Improved Heat Treatment Control.* (Schaffende Heimat, Vol. 12, No. 1, 6/2/44, p. 3.)
562	21533	U.S.A. ...	*Applying Prepared Atmosphere to Metal-Processing.* (R. G. Coriolis, A.S.M.E. Preprint, Nov. and Dec., 1943, pp. 1-4.)
563	21540	U.S.A. ...	*Rates of Cooling in Blocks and Cylinders.* (C. B. Post and W. H. Fenstermacher, American Society for Metals Preprints 25th Annual Convention, 18th and 22nd Oct., 1943, pp. 1-21.)
564	21541	U.S.A. ...	*Quenching and Hardenability of Hollow Cylinders.* (J. H. Hollomen and C. Zener, American Society for Metals Preprints 25th Annual Convention, Oct. 18th and 22nd, 1943, pp. 1-17.)
565	21556	U.S.A. ...	*Interrupted-Quench and Isothermal Treatments of Precipitation Hardening Alloys: Introductory Notes.* (R. H. Harrington, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-14.)
566	21627	U.S.A. ...	*Practical Application to Flame Hardening.* (A. L. Hartley, A.S.M.E. Preprints, 1942, pp. 1-11.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
567	21672	G.B. ...	...	*Patent Thermobloc Recuperators and Heat Exchangers (High Speed Tool Hardening Furnace).* (Sheet Metal Industries, Vol. 19, No. 204, April, 1944, p. 625.)
568	21971	U.S.A.	...	*Applications, Properties and Cost of Controlled Atmospheres for Heat Treating (Data Sheets).* (Aviation, Vol. 43, No. 1, Jan., 1944, pp. 203-7.)
569	22155	G.B. ...	...	*Testing the Suitability of Abrasive Wheels and the Machineability of Metals by Temperature.* (Machinery, Vol. 64, No. 1643, 6/4/44, pp. 374-376.)
570	22167	G.B. ...	...	*Up to Date Foundry* (Electrical Applications to Fully Mechanized Plant). (Electrical Review, Vol. 134, No. 3462, 31/3/44, pp. 436-440.)
				Surface Protection.
571	21242	G.B. ...	...	*Aluminizing Telescope Reflectors* (Metallic Films on Glass by Cathodic Sputtering). (Light Metals, Vol. 7, No. 74, March, 1944, pp. 122-5.)
572	21394	Germany	...	*Hard Chromium Plating.* (Schaffende Heimat, Vol. 12, No. 5, 30/1/44, pp. 1-2.)
573	21458	U.S.A.	...	*Metal Spraying Solves a Finishing Problem.* (Production of Protective Metal Castings on High Carbon Spring Steel without Hydrogen Embrittlement). (R. C. Overstreet, Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 634-6.)
574	21459	U.S.A.	...	*Dictionary of Metal Finishing Chemicals.* (Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 641-2.)
575	21460	U.S.A.	...	*New Electrolytic Process for Zinc Protection* (Black or Yellow Finish). (Metal Finishing, Vol. 41, No. 10, Oct., 1943, p. 646.)
576	21462	U.S.A.	...	*The Thickness of Paint Films Applied with a Straight Edge Spreader.* (Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 677-680.)
577	21504	G.B. ...	...	*Pre-cleaning with Solvent Emulsions* (Prior to Plating). (C. S. Lowe, Metal Industry, Vol. 64, No. 13, 31/3/44, pp. 201-4.)
578	21555	U.S.A.	...	*A Study of the Nitriding Process (I.) Effect of Ammonia Dissociation on Case Depth and Structure.* (C. F. Floe, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-24.)
579	21921	G.B. ...	...	*The Distribution of Electrodeposits—Control Devices for Building up with Nickel or Chromium.* (C. J. Leadbeater, Metal Industry, Vol. 64, No. 15, 14/4/44, pp. 234-6.)
580	22077	G.B. ...	...	*Protective Finishes* (Electrodeposited and Allied Finishing Processes). (J. S. Jones and P. M. Walker, Inst. of Prod. Engineers' Journal, Vol. 23, No. 3, March, 1944, pp. 64-83.)
581	22240	G.B. ...	...	*Jet Pickling—A Comparison of the Spray and Immersion Processes.* (W. E. Grant, Metal Industry, Vol. 64, No. 16, 21/4/44, pp. 251-2.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Drilling, Cutting, Pressing, Extrusion.
582	21193	U.S.A. ...	*Methods of Forming Aluminium Alloy Extrusions and Preformed Sheet Metal Sections.* (W. Schroeder, Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 28-31, 100.)
583	21353	G.B. ...	*Cutting Angle Relationships.* (Machinery, Vol. 64, No. 1639, 9/3/44, p. 257.)
584	21359	G.B. ...	*Control of Flange Wrinkles in Rubber Press Forming.* (Machinery, Vol. 64, No. 1639, 9/3/44, p. 270.)
585	21364	G.B. ...	*Metal Cutting with Ferrogas: Use of Enriched Coal Gas.* (Mechanical World, Vol. 115, No. 2984, 10/3/44, p. 267.)
586	21628	U.S.A. ...	*Metal Cutting with Abrasive Wheels.* (W. H. Heinz, A.S.M.E. Preprints, 1942, pp. 1-6.)
587	21701	G.B. ...	*"Trefolex" Cutting Compound.* (Mechanical World, Vol. 115, No. 2985, 17/3/44, p. 297.)
588	21703	G.B. ...	*Photo-electric Controls for Gas Cutting.* (Mechanical World, Vol. 115, No. 2985, 17/3/44, p. 307.)
			Rolling, Milling, Drawing, Forging.
589	21358	G.B. ...	*The Two Jaw Chuck Applied to Drop Forgings.* (Machinery, Vol. 64, No. 1639, 9/3/44, pp. 269-270.)
590	21392	Germany ...	*Development in Broad Strip Rolling* (Interposition of Spool Furnaces in which strip is wound and unwound). (Schaffende Heimat, Vol. 12, No. 4, 25/1/44, p. 5.)
591	21499	G.B. ...	*The Rolling of Aluminium Sheet—The Trentwood Plant of the Aluminium Co. of America.* (T. J. Ess, Metal Industry, Vol. 64, No. 13, 31/3/44, pp. 184-95.)
592	21671	G.B. ...	*Distribution of Strains in the Rolling Process.* (C. W. Macgregor and L. F. Coffin, Sheet Metal Industries, Vol. 19, No. 204, April, 1944, pp. 617-624, 628.)
593	21674	G.B. ...	*Sealed Lubrication in Modern Sheet Mill Practice (Modified Leather Packing for Oil Seal).* (Sheet Metal Industries, Vol. 19, No. 204, April, 1944, pp. 629-670.
594	21692	G.B. ...	*Effect of Tooth Clearance on Milling-Cutting Performance.* (Machinery, Vol. 64, No. 1640, 16/3/44, pp. 291-3.)
595	21899	G.B. ...	*Flat Metal Sheets—Strengthened by Novel Rolling Operation.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 136.)
596	22154	G.B. ...	*Fixtures for Face-milling.* (S. Smith, Machinery, Vol. 64, No. 1643, 6/4/44, p. 373.)
597	22158	G.B. ...	*Indexing Collet Fixture for Milling.* (A. S. Arnott, Machinery, Vol. 64, No. 1643, 6/4/44, p. 376.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Polishing, Turning, Machining, Grinding.
598	21309	Germany ...	*Dressing Grinding Wheels Without Diamonds (Digest) (From Werkstat und Betrieb, Vol. 76, No. 3, March, 1943, pp. 49-50.)* (H. Frank, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 14-15.)
599	21310	Germany ...	*Grinding of Tools (Digest) (From Werkstattstechnik, der Betrieb, Vol. 37/38, No. 5, May, 1943, pp. 185-8).* (K. Lüdtke, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 15-17.)
600	21579	G.B.	*Coolant for Machining Magnesium.* (Metal Industry, Vol. 64, No. 14, 7/4/44, p. 218.)
601	21670	G.B.	*Electrolytic Methods of Polishing Metals (Part I.) The Development of Electrolytic Polishing.* (S. Wernick, Sheet Metal Industries, Vol. 19, No. 204, April, 1944, pp. 613-616.)
602	21694	G.B.	*Securing Fine Surfaces by Grinding.* (H. G. Wills, Machinery, Vol. 64, No. 1640, 16/3/44, pp. 294-6.)
603	21905	G.B.	*A Coolant for Wet Machining Magnesium Alloy.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 150.)
604	21916	G.B.	*Metallographic Polishing* (Preparing Specimen for Microexamination). (Metal Industry, Vol. 64, No. 15, 14/4/44, p. 228.)
605	22270	G.B.	*Better Grinding (Trade Pamphlet).* (Machinery, Vol. 64, No. 1642, March 30th, 1944, p. 352.)
			Etching, Bonding.
606	21118	G.B.	*A New Glueing Process—Part II (Advantages over High Frequency Heating Claimed).* (W. Gallay and G. C. Graham, British Plastics, Vol. 16, No. 178, March, 1944, pp. 103,112.)
607	21366	G.B.	*Writing on Glass* (Use of Aluminium Pointed Rod). (Mechanical World, Vol. 115, No. 2984, 10/3/44, p. 272.)
			Soldering, Brazing.
608	21261	G.B.	*Electrical Soldering Apparatus* (British Patent). (Aircraft Production, Vol. 6, No. 66, April, 1944, p. 203.)
609	21389	Germany ...	*Brazing in a Protective Atmosphere.* (Schaffende Heimat, Vol. 12, No. 4, 25/1/44, pp. 1-2, 7.)
610	21656	G.B.	*Researches for Improved Solder Fluxes* (Welding Journal, U.S.A., Vol. 22, 1943, Aug. Supp, pp. 373-4). (H. Peters and B. Gonser, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, pp. 30-1.)
611	21895	U.S.A. ...	*Fluxed Wire Solder* (Fluxite). (Industrial Engineering and Chemistry News Edition, Vol. 22, No. 4, 25/2/44, p. 285.)
612	22233	G.B.	*Soft Solders—Fundamental Consideration of Essential Properties.* (R. G. Harper, Metal Industry, Vol. 64, No. 16, 21/4/44, pp. 242-4.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
613	22239	G.B. ...	...	*Induction Brazing—Fundamental Principles and Applications.* (W. S. Craig, Metal Industry, Vol. 64, No. 16, 21/4/44, p. 250.)
				Casting, Moulding.
614	21337	G.B. ...	...	*Gravity Die-Casting of Non-Ferrous Alloys.* (E. H. A. Carlton, Engineering, Vol. 157, No. 4080, March, 1944, pp. 237-9.)
615	21358	Germany	...	*Cleaning Castings with High-Pressure Water.* (Schaffende Heimat, Vol. 12, No. 1, 6/2/44, p. 2.)
616	21501	G.B. ...	...	*The Casting of Metal Rolling Slabs* (Comprehensive Study of the Mode of Solidification in all Types of Mould and particularly with the Flat Tooled Mould. From the German). (F. Erichsen, Metal Industry, Vol. 64, No. 13, 31/3/44, pp. 197-9.)
617	21505	G.B. ...	...	*Die Casting—Present Position and Future Prospects.* (Metal Industry, Vol. 64, No. 13, 31/3/44, p. 205.)
618	21576	Germany	...	*The Casting of Metal Rolling Slabs—Made of Solidification in Different Types of Mould.* (F. Erichsen, Metal Industry, Vol. 64, No. 14, 7/4/44, pp. 214-216.)
619	21919	G.B. ...	...	*Bronze Castings—The Advantages of the Use of Chills.* (J. W. Bryant, Metal Industry, Vol. 64, No. 15, 14/4/44, p. 231.)
620	21920	G.B. ...	...	*The Casting of Metal Rolling Slabs—Results Obtained with the Flat Cooled Mould.* (F. Erichsen, Metal Industry, Vol. 64, No. 15, 14/4/44, pp. 232-3.)
621	22215	U.S.A.	...	*Centrifugal Casting of Steel.* (S. D. Moseley, A.S.M.E. Preprint, April 3-5th, 1944, pp. 1-10.)
622	22269	G.B. ...	...	*Injection of Metal into Die Casting Dies.* (H. K. Barton, Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 357-359.)
				Powder Metallurgy.
623	21273	G.B. ...	...	*Powder Metallurgy (Papers presented at the 1940 and 1941 Conference on Powder Metallurgy, held at the N.I.T.) (Book Review).* (W. D. Jones, Aircraft Engineering, Vol. 16, No. 181, March, 1944, p. 82.)
624	21274	G.B. ...	...	*Symposium on Powder Metallurgy* (Book Review) (A.S.T.M. Publication). (W. D. Jones, Aircraft Engineering, Vol. 16, No. 181, March, 1944, p. 82.)
625	21912	G.B. ...	...	*Powdered Steel Articles (British Patent No. 551147).* (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 167.)
626	22234	G.B. ...	...	*Powder Metallurgy in 1943.* (Metal Industry, Vol. 64, No. 16, 21/4/44, p. 244.)
				Tools and Machines.
627	21210	Germany	...	*Hand and Machine Tools Operated by Compressed Air.* (K. Weinhold, Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, pp. 33-41.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
628	21216	Germany	...	*Radial Drilling Machine wth Outer Arm Support Giving Increased Rigidity.* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 52.)
629	21220	Germany	...	*G.E.C. Miniature Welding Tool (Advert).* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 23.)
630	21311	Germany	...	*Cylindrical Thread Grinding Machine* (Digest) (From Die Werkzeugmaschine, Vol. 46, No. 10, May, 1942, pp. 297-8). (Engineers' Digest, Vol. 5, No. 1, Jan., 1944, p. 17.)
631	21312	Germany	...	*Thread and Gear Hobber* (Digest) (From Die Werkzeugmaschine, Vol. 45, No. 10, May, 1942, pp. 303-4). (Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 18-19.)
632	21313	Germany	...	*Double Cutter Bevel Gear Shaper* (Digest) (From Die Werkzeugmaschine, Vol. 46, No. 10, May, 1942, pp. 298-9). (Engineers' Digest, Vol. 5, No. 1, Jan., 1944, p. 19.)
633	21339	G.B. ...	...	*Spraying Gun for Viscous Materials.* (Engineering, Vol. 157, No. 4080, March, 1944, p. 226.)
634	21461	U.S.A.	...	*Preparation of Arc Welded Machinery for Finishing.* (W. J. Brooking, Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 671-4.)
635	21512	G.B. ...	...	*Butt Welded Cutting Tools.* (L. G. Whybrow, Engineer, Vol. 177, No. 4603, 31/3/44, p. 253.)
636	21545	U.S.A.	...	*The Microhardness Tester as a Metallurgical Tool.* (C. B. Brodie, American Society for Metals Preprints 25th Annual Convention, Oct. 18th and 22nd, 1943.)
637	21588	U.S.A.	...	*Cemented—Carbide-Tipped Milling Cutters—Elements to be Considered in Milling Steels.* (F. W. Lucht, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 192-8.)
638	21691	G.B. ...	...	*High Speed Steel-Tipped Tools and Tool Grinding.* (J. Farmer, Machinery, Vol. 64, No. 1640, 16/3/44, pp. 287-290.)
639	21693	G.B. ...	...	*Centre Drill Holders for Producing Accurate Centres.* (Machinery, Vol. 64, No. 1640, 16/3/44, p. 293.)
640	22162	G.B. ...	...	*Tools for Producing a Sheet Steel Pressing.* (W. Danks, Machinery, Vol. 64, No. 1643, 6/4/44, pp. 382-384.)
641	22242	G.B. ...	...	*Welding Machines* (Reduction of Power Consumption) (Abstract). (L. B. Wilson, Electrical Review, Vol. 134, No. 3463, 7/4/44, p. 484.)

C. Inspection.

X-Ray Examination.

642	21137	G.B. ...	...	*X-Ray Examination in Metals.* (Times Trade and Engineering, Vol. 54, No. 958, Dec., 1943, p. 28.)
643	21515	G.B. ...	...	*Study of Internal Stress in a Metal by X-Ray Diffraction.* (W. A. Wood, Engineer, Vol. 177, No. 4603, 31/3/44, p. 258.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
644	21660	G.B. ...	... *The X-Ray Examination of Plastics.* (W. T. Astbury, Chemistry and Industry, No. 15, 8/4/44, pp. 142-4.)
645	21724	U.S.A.	... *Flaw Detection by X-Ray.* (J. L. Bach, Flying, Vol. 34, No. 2, Feb., 1944, pp. 78-9.)
646	22752	U.S.A.	... *Alteration of X-Ray Beams to Meet Inspection Requirements.* (R. Taylor, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 114-6, 206-9.)
647	22075	G.B. ...	... *Some Applications of X-Ray Analysis to Technical Problems.* (H. S. Rooksby, Chemistry and Industry Weekly, No. 16, 15/4/44, p. 149.)
648	22134	G.B. ...	... *X-Ray Divergent-Beam Photography as a Test of Crystal Perfection.* (K. Lonsdale, Nature, Vol. 153, No. 3884, 8/4/44, pp. 433-4.)

Optical and Photographic Methods.

649	21267	G.B. ...	... *Multisource Unit for Spectrographic Work.* (Journal of Scientific Instruments, Vol. 21, No. 2, Feb., 1944, pp. 33-4.)
650	21513	G.B. ...	... *Modern Aids in the Investigation of Materials, Mechanisms and Structures—High-Speed Photography.* (F. C. Johansen, Engineer, Vol. 177, No. 4603, 31/3/44, p. 257.)
651	22033	G.B. ...	... *"Electric Eye" Inspects Plastics Buttons.* (British Plastics, Vol. 16, No. 179, April, 1944, p. 167.)

Physical and Chemical Tests.

652	21217	Germany	... *Apparatus for Testing the Crack Sensitivity of Heat Resisting Tungsten — Molybdenum Steels.* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 53.)
653	21236	G.B. ...	... *Interference—Band Inspection of Surface Finish.* (Engineering, Vol. 157, No. 4079, March, 1944, pp. 205-7.)
654	21544	U.S.A.	... *A Metallographic Study of the Decomposition of Austenite in Manganese Steels.* (J. Russell and F. T. McGuire, American Society for Metals Preprints 25th Annual Convention, Oct. 18th and 22nd, 1943, pp. 1-19.)
655	21550	U.S.A.	... *High Speed Testing of Mild Steel.* (J. H. Hollomon and C. Zener, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-9.)
656	21562	U.S.A.	... *Notched Bar Tensile Test Characteristics of Heat Treated Low Alloy Steels.* (G. Sachs, J. D. Lubahn and L. J. Ebert, American Society for Metals Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-53.)
657	21810	G.B. ...	... *Fatique Tests on Arc Welded 3 per cent. Nickel Steel.* (F. W. Thorne and others, Institute of Welding Transactions, Vol. 7, No. 1, March, 1944, pp. 38-41.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
658	21868	U.S.A. ...	*Physical Methods of Analysis of Synthetic and Natural Rubber.* (R. B. Barnes and others, Industrial Engineering and Chemistry (Analytical Ed.), Vol. 16, No. 1, 25/1/44, pp. 9-14.)
659	21869	U.S.A. ...	*Determination of Rate of Cure for Natural and Synthetic Rubber.* (L. H. Cohan and M. Steinberg, Industrial Engineering and Chemistry (Analytical Ed.), Vol. 16, No. 1, 25/1/44, pp. 15-20.)
660	21870	U.S.A. ...	*Gravimetric Determination of Tungsten.* (J. H. Yoe and A. L. Jones, Industrial Engineering and Chemistry (Analytical Ed.), Vol. 16, No. 1, 25/1/44, pp. 45-8.)
661	22135	G.B.	*An Interferometric Procedure for the Examination of Crystal Surfaces.* (M. Siegbahn, Nature, Vol. 153, No. 3884, 8/4/44, p. 435.)

Polarographic and Magnetic Determination.

662	21163	G.B.	*The Separation of Metals by Means of the Mercury Cathode: Chromium (Factors Affecting the Rate of Deposition of Chromium in the Presence of Amonium Sulphate) (From the "Analyst," June, 1943, Vol. 68, No. 807, pp. 175-180).* (R. C. Chirmside and others, Reprints Misc., pp. 175-180.)
663	21307	Germany ...	*Magnetic Methods for Testing Iron (Digest) (From Maschinenbau-Betrieb, Vol. 21, No. 10, Oct., 1942, pp. 435-7).* (R. Lessow, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 10-11.)
664	21871	U.S.A. ...	*Polarographic Determination of Copper, Lead and Cadmium in High Purity Zinc Alloys.* (R. C. Hawkings and H. G. Thade, Industrial Engineering and Chemistry (Analytical Ed.), Vol. 16, No. 1, 25/1/44, pp. 71-4.)

Quality Control.

665	21259	G.B.	*Quality Control—A Review of Three Common Misapplications of the System.* (H. Howell, Aircraft Production, Vol. 6, No. 66, April, 1944, pp. 198-201.)
666	21584	U.S.A. ...	*Some Principles of the Shewhart Methods of Quality Control.* (W. F. Deming, Mechanical Engineering, Vol. 66, March, 1944, p. 173.)

INSTRUMENTS.

Aircraft.

667	21132	G.B.	*The Synchrophone (Facilitates Training in the R.A.F.).* (Times Trade and Engineering, Vol. 54, No. 957, Nov., 1943, p. 35.)
668	21133	G.B.	*New Westland Electric Remote Control Unit* (Times Trade and Engineering, Vol. 54, No. 957, Nov., 1943, p. 36.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
669	21232	U.S.A.	...	*Use of Sound and Wire Recording Device to Improve Flight Instruction Methods.* (American Aviation, Vol. 7, No. 18, 15/2/44, p. 34.)
670	21277	G.B. ...	...	*The Instrument Industry and Aircraft Development.* (S. L. Baron, Aircraft Engineering, Vol. 16, No. 181, March, 1944, p. 90.)
671	21368	G.B. ...	...	*Mounting Switchgear Instruments.* (Mechanical World, Vol. 115, No. 2984, 10/3/44, p. 278.)
672	21408	U.S.A.	...	*Gillmer Wind and Course Computor (Weems' System of Navigation).* (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 372.)
673	21734	U.S.A.	...	*C.A.A. Stall Warning Instrument.* (Civil Aeronautics Journal, Vol. 5, No. 2, 15/2/44, p. 19.)
674	21781	U.S.A.	...	*Cable Tension Indicator.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 136.)
675	22103	U.S.A.	...	*Flying Boat Loading Instrument, Developed by Martin Engineers* (Hydrobal). (Automotive and Aviation Industries, Vol. 30, No. 4, Feb. 15th, 1944, pp. 38, 88.)
676	22301	G.B. ...	...	*Instruments for Measuring Speeds and Accelerations.* (I. H. Thomas and J. J. Vincent, Journal of Sci. Instruments, Vol. 21, No. 3, 21/4/44, pp. 45-8.)
				Meters, Recorders, Gauges.
677	21235	G.B. ...	...	*Electrical Resistance Wire Strain Gauges.* (F. Aughtie, Engineer, Vol. 177, No. 4602, 24/3/44, p. 237.)
678	21284	G.B. ...	...	*The Microtimer.* (Engineer, Vol. 177, No. 4602, 24/3/44, p. 236.)
679	21308	Germany	...	*Roll Pressure Measurement by Means of an Electric Strain Gauge (Digest) (From Z.V.D.I., Vol. 87, Nos. 17-18, May 1st, 1943, pp. 256-6).* (D. W. Redepenning, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 12-13.)
680	21370	G.B. ...	...	*Water and Oil Meters.* (Mechanical World, Vol. 115, No. 2984, 10/3/44, pp. 281-3.)
681	21381	U.S.A.	...	*Instrument for Recording Blowby Gases in an Internal Combustion Engine* (Abstract). (R. Proctor and others), S.A.E. Journal, Vol. 52, No. 1, Jan., 1944, p. 38.)
682	21735	U.S.A.	...	*Magnetic Wire Recorder Assists Flight Training.* (Civil Aeronautics Journal, Vol. 5, No. 2, 15/2/44, p. 20.)
683	21853	G.B. ...	...	*Instantaneous Gas Analysis by Means of Ultra Violet Photometer.* (Electrical Review, Vol. 134, No. 3461, 24/3/44, p. 404.)
684	21883	G.B. ...	...	*Installation for Recording Movements of Golden Gate Bridge (Wind Vane and Anemometer, Horizontal Measuring Rod).* (Engineer, Vol. 177, No. 4604, 7/4/44, pp. 275-6.)
685	21896	U.S.A.	...	*Orifice Computer (for Determining Rate of Delivery of Gas, Steam, etc.).* (Industrial Engineering and Chemistry News Edition, Vol. 22, No. 4, 25/2/44, p. 277.)

ITEM NO.	R.T.P. REF		TITLE AND JOURNAL.
686	22300	G.B.	*A Photo-electric Photometer for Measuring the Light Scattered by the Surface of a Transparent Material (for Determining Resistance of Surface to Abrasion).* (J. M. Sowerby, Journal of Sci. Instruments, Vol. 21, No. 3, 21/4/44, pp. 42-5.)

PRODUCTION.

Organisation, Control.

687	21281	G.B.	*Post War Aviation Industry.* (Engineer, Vol. 177, No. 4602, 24/3/44, p. 230.)
688	21334	G.B.	*The Capacity Offices of the Ministry of Production.* (Engineering, Vol. 157, No. 4080, March, 1944, p. 226.)
689	21341	U.S.A. ...	*A Sampling Inspection Plan for Continuous Production.* (H. F. Dodge, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, pp. 127-133.)
690	21363	G.B.	*Practical Labour Costing.* (Mechanical World, Vol. 115, No. 2984, 10/3/44, pp. 264-7.)
691	21387	Germany ...	*New German Control Measure for the Sheet Metal Industry (order and manufacturing permits).* (Schaffende Heimat, Vol. 12, No. 1, 6/2/44, p. 6.)
692	21449	Japan ...	*Japanese Aircraft Industry Expansion.* (Inter Avia, No. 903, 22/1/44, pp. 12-13.)
693	21465	G.B.	*Industrial Policy and Employment in G.B.* (Nature, Vol. 153, No. 3882, 25/3/44, pp. 355-357.)
694	21472	G.B.	*Aircraft Production (Review by Sir Stafford Cripps).* (Aeroplane, Vol. 66, No. 1713, 24/3/44, p. 317.)
695	21587	U.S.A. ...	*Scientific Methods of Distribution—Engineering Technique as Applied to the Marketing of the Products of Twelve Industrial Companies.* (F. B. Turck and W. E. Hill, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 183-191.)
696	21683	G.B.	*Production Capacity Officers.* (Sheet Metal Industries, Vol. 19, No. 204, p. 683.)
697	21722	U.S.A. ...	*" Boypower " (Californian Aircraft Plants Employ Youths on a Co-operative Education-Production Basis).* (B. M. Soweld, Flying, Vol. 34, No. 2, Feb., 1944, pp. 70-1, 170.)
698	21753	U.S.A. ...	*Scientific Marking of Aircraft Parts Aids Quality Control.* (C. A. Banze, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 118-120, 217.)
699	21786	U.S.A. ...	*Why Not a Peace Consumption Board (Industry's Post-War Problem).* (Dorothy Thompson, Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 54-5, 124.)
700	21879	U.S.A. ...	*1944 S.A.E. War Engineering Annual Meeting* (Review of Papers). (S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 17-19, 38-45, 50-3.)

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701	21942	G.B.	...	*Where Battles Are Won—The Post-War Responsibility of the Aircraft Industry).* (R. D. Leekey, Flight, Vol. 45, No. 1842, April 13th, 1944, p. 404.)
702	21952	U.S.A.	...	*What I Would Do About Reconversion (Conversion of Aircraft Industry from Military to Post-war Activity).* (D. W. Douglas, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 114-5, 306.)
703	22264	G.B.	...	*Up to Date Shop Layouts.* (Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 347-348.)
704	22292	U.S.A.	...	*How Production Control Functions at Vultee.* (W. V. McClung, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 28-31.)
705	22296	U.S.A.	...	*Quality Control Through Shop Teamwork.* (B. Holland, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 38-40, 62-8.)
				Research and Training.
706	21148	G.B.	...	*Industrial Research—Some Wider Aspects.* (J. W. Waterer, Times Trade and Engineering, Vol. 54, No. 939, Jan., 1944, p. 9.)
707	21168	G.B.	...	*X-Ray Technique in the Industrial Laboratory (Cantor Lecture Deliveries before Roy. Soc. of Arts, March, 1942).* (H. P. Rooksby, Reprints, Misc., p. 36.)
708	21268	G.B.	...	*Science and Industry.* (W. F. Cohen, Chemistry and Industry, March, 1944, pp. 118-120.)
709	21283	G.B.	...	*Research Workers: Their Education and Their Place in Industry.* (A. P. N. Fleming, Engineer, Vol. 177, No. 4602, 24/3/44, pp. 234-5.)
710	21427	Germany	...	*The Importance of Mechanical Principles in Research.* (Forschung, Vol. 12, No. 1, Jan.-Feb., 1943, pp. 1-15.)
711	21464	G.B.	...	*Education of the Chemist.* (Nature, Vol. 155, No. 3882, 25/3/44, pp. 353-355.)
712	21496	U.S.A.	...	*Cleveland—Educational and Research Centre (Case School of Applied Science).* (M. M. Braidech, Industrial Engineering Chemistry News Edition, Vol. 22, No. 3, 10/2/44, pp. 172-6.)
713	21510	G.B.	...	*An Aeronautical College.* (Engineer, Vol. 177, No. 4603, 31/3/44, p. 250.)
714	21511	G.B.	...	*Industrial Research.* (Engineer, Vol. 177, No. 4603, 31/3/44, pp. 250-1.)
715	21848	G.B.	...	*Technical Education.* (J. P. Yorke, Electrician, Vol. 132, No. 3433, 17/3/44, p. 226.)
716	21852	G.B.	...	*Education and Training—I.* (A. P. M. Fleming, Electrical Review, Vol. 134, No. 3460, 17/3/44, pp. 362-4.)
717	21854	G.B.	...	*Part-time Education.* (P. Dunsheath, Electrical Review, Vol. 134, No. 3461, 24/3/44, pp. 405-6.)
718	21894	U.S.A.	..	*British Viewpoint on Chemical Education.* (Industrial Engineering and Chemistry News Edition, Vol. 22, No. 4, 25/2/44, pp. 250-2.)

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719	22089	U.S.A. ...	*Apprentice Training* (*Watervliet Arsenal's Program for Developing Skilled Machinists*). (R. S. Webster, Army Ordnance, Vol. 26, No. 143, April, 1944, pp. 299-302.)
720	22150	G.B.	*Research Workers. A Consideration of Their Education and Place in Industry* (*Abstract*). (A. P. M. Fleming, Electrician, Vol. 132, No. 3435, 31/3/44, pp. 275-6.)
721	22168	G.B.	*Apprentice Training. How the British Thomson Houston Scheme Operates.* (H. Warren, Electrical Review, Vol. 134, No. 3462, 31/3/44, pp. 441--3.)
722	22209	U.S.A. ...	*Industrial Research Progress at the Armour Research Foundation*, 1942-3. (Industrial and Eng. Chem. News Edition, Vol. 22, No. 1, 10/1/44, pp. 18-29.)
723	22243	G.B.	*The Education Bill—Proposed Developments in Technical Instruction.* (W. R. C. Goode Adams, Electrical Review, Vol. 134, No. 3463, 7/4/44, pp. 479-480.)
			Aircraft and Aero Engine Production.
724	21103	U.S.A. ...	*Simplified Identification of Airplane Tubing* (*Curtiss-Wright System*). (Aero Digest, Vol. 43, No. 4, Oct., 1943, p. 303.)
725	21191	U.S.A. ...	*New Asembly System of the Douglas Plant* ("*Flowline*" *Motor Powered Assembly System*). (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 20-1, 98-100).
726	21254	G.B.	*Hawker Typhoon. Part I—Wing Construction and Manufacture.* (W. E. Goff, Aircraft Production, Vol. 6, No. 66, April, 1944, pp. 158-170.)
727	21255	G.B.	*Plastic Bonding—Use of Cycleweld Process in Making Joints between Metal, Wood and other Materials.* (Aircraft Production, Vol. 6, No. 66, April, 1944, pp. 171-2.)
728	21343	U.S.A. ...	*Problems of Construction and Alternate Substitutes in Wood Aircraft.* (J. M. Stevens, Transactions of the A.S.M.E., Vol. 66, No. 2, Feb., 1944, pp. 155-9).
729	21558	U.S.A. ...	*Bright Gas Quenching of S.A.E. X-4130 and NE-8630 Welded Aircraft Tubes.* (W. Lehrer, American Society for Metal Preprints 25th Annual Convention, Oct. 18th to 22nd, 1943, pp. 1-31.)
730	21652	G.B.	*The Application of Flash Welding in Aircraft Construction* (Abstract) (Welding Journal, U.S.A., Vol. 22, Oct., 1943, pp. 769-775). (C. B. Smith, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, p. 23.)
731	21653	G.B.	*Surface Treatment of Aluminium Alloy Assemblies Prior to Spot Welding* (Welding Journal, Vol. 22, Aug., 1943, pp. 602-4). (H. O. Klinke, Welding Literature Review, Vol. 6, No. 1, Feb., 1944, pp. 23-6.)

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732	21749	U.S.A.	...	*Electrical Industry's Role in Refinement of Aircraft (Gun Turret Controls. Ignition System, etc.).* (J. C. Miller, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 96-7, 225-8.)
733	21760	U.S.A.	...	*Packaging Aircraft Parts for Export (Use of Moisture-impervious Containers of Metal Paper).* (Aero Digest, Vol. 44, No. 2, 15/1/44, p. 161.)
734	21768	U.S.A.	...	*New Waco CG-13 Glider Goes into Production.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 71.)
735	21771	U.S.A.	...	*Design of Spot Welding Aluminium Alloy Aircraft Structures—Part I.* (A. Epstein and H. O. Klinke, Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 80, 84, 204-214.)
736	21789	G.B.	...	*Increased Soviet Output of Aircraft (New Production Methods).* (Aeroplane, Vol. 66, No. 1714, 31/3/44, p. 348.)
737	21805	G.B.	...	*Experiments with the Fabrication of an Aero Engine Exhaust Manifold in Austenitic Chromium Nickel Steel (Use of Welding).* (K. J. B. Wolfe, Institute of Welding, Vol. 6, Nos. 3-4, July-Oct., 1943, pp. 123-134.)
738	21958	U.S.A.	...	*Continuous Pouring of Magnesium Engine Castings* (Moving Conveyor System). (C. S. Ricker, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 150-9.)
739	21959	U.S.A.	...	*Spot Welding Expedites Production of Lockheed "Constellations."* (E. F. Gardner, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 161-5, 363.)
740	21963	U.S.A.	...	*Aircraft Production Analysis: Key to Assembly Line Efficiency, Part II (Production Control, Production Illustration, etc.).* (L. F. Dorman, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 179-183, 360-3.)
741	21976	U.S.A.	...	*One Man Dolly Saves Propeller Mounting Time.* (Aviation, Vol. 43, No. 1, Jan., 1944, pp. 224, 325.)
742	22078	G.B.	...	*Some Notes on the Benefits of Line Production.* (J. S. Murphy, Inst. of Prod. Engineers' Journal, Vol. 23, No. 3, March, 1944, pp. 84-8.)
743	22099	U.S.A.	...	*Metal Propeller Blades Precision Rolled on an Automatic Mill.* (J. W. Smith, Automotive and Aviation Industries, Vol. 30, No. 4, Feb. 15, 1944, pp. 22-4, 170.)
744	22152	G.B.	...	*Deep Drawing of Formed Parts for Flying Fortresses (Boeing Aircraft Co.).* (B. K. B. Machinery, Vol. 64, No. 1643, 6/4/44, pp. 365-369.)
745	22179	Canada	...	*New Developments in Hydraulic Presses Speeds Aircraft Production.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, p. 101.)
746	22184	Canada	...	*Ryan Aircraft Plant Uses Huge Wooden Trusses.* (Canadian Aviation, Vol. 17, No. 2, Feb., 1944, p. 126.)
747	22226	U.S.A.	...	*Analysis of Airframe Production Methods in the Aircraft and Automobile Industries.* (T. N. Kelly, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, pp. 1-9.)

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748	22227	U.S.A.	...	*The Design for Production of Sheet Metal Aircraft Parts.* (Frank H. Mallett, S.A.E. Preprint, April 5-7th, New York Meeting, pp. 1-10.)
749	22229	U.S.A.	...	*Aircraft Engine Production as Viewed by an Automobile Manufacturer.* (Jesse G. Vincent, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, pp. 1-6.)
750	22260	G.B. ...	...	*Production Methods on Transport Planes (with Particular Reference to Curtiss Commando C-46).* (Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 337-342.)
751	22288	U.S.A.	...	*Financial Plight of America's Aircraft Industry.* (L. W. Shaw, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 17-19, 146.)
752	22294	U.S.A.	...	*Flying Jeeps on the Production Line (Stinson "Sentinel" Army Co-operation Plane).* (J. Geschelin, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 34-6.)
753	22297	U.S.A.	...	*Plastic Skin Protects Parts During Shipment (Applied by the Hot Dip Process).* (Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 72-5.)
				General Industrial Methods.
754	21106	U.S.A.	...	*Use of Sticks of Spaghetti as Support when Welding Tiny Wire Coils (Speeds Filament Production for Electronic Tubes by 50 per cent.).* (Aero Digest, Vol. 43, No. 4, Oct., 1943, pp. 305-6.)
755	21219	Germany	...	*Testing Armour Piercing Bullets for Cracks after Manufacture.* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 54.)
756	21275	G.B. ...	...	*Design and Production Technique III. Principles Involved in Punching.* (A. J. Schroeder, Aircraft Engineering, Vol. 16, No. 181, March, 1944, pp. 83-8.)
757	21318	Germany	...	*A Novel Method for Sharpening Ragged and Knobbling Rolls* (Digest) (From Stahl und Eisen, Vol. 63, No. 22, June 3, 1943, pp. 446-7). (O. Rademacher, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, p. 13.)
758	21352	G.B. ...	...	*Machining Armour Piercing Shot Operations on Vertical Automatics* (Machinery, Vol. 64, No. 1639, 9/3/44, pp. 253-7.)
759	21575	G.B. ...	...	*The Applications and Limitations of Welded Joints in Non-ferrous Chemical Plant.* (W. K. B. Marshall, Metal Industry, Vol. 64, No. 14, 7/4/44, pp. 210-3.)
760	21577	G.B. ...	...	*Deburring Metal Parts in Bulk—Applications, Methods, Plant.* (R. Sizelove, Metal Industry, Vol. 64, No. 14, 7/4/44, p. 216.)
761	21580	G.B. ...	...	*Precision Castings—Application of the Lost Wax Process to Quantity Production.* (L. L. Wyman and D. Dasch, Metal Industry, Vol., 64, No. 14, 7/4/44, pp. 219-220.)

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762	21586	U.S.A. ...	*Quality Control in Manufacture of Small-Arms Ammunition.* (H. M. Smallwood, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 179-182.)
763	21681	G.B.	*Technical Problems in the Production of Small Steel Pressings.* (J. A. Grainger, Sheet Metal Industries, Vol. 19, No. 204, pp. 677-683.)
764	21698	G.B.	*Reclaiming Tungsten Carbide Method Used in Ford Factory.* (Mechanical World, Vol. 115, No. 2985, 17/3/44, p. 291.)
765	21699	G.B.	*Chain Cables, Manufacture by Forging and Flash Butt Welding.* (T. S. Glover, Mechanical World, Vol. 115, No. 2985, 17/3/44, pp. 292-5.)
766	21755	U.S.A. ...	*Auxiliary Plate Set System Accelerates Multiple Punching.* (F. H. Limburg, Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 130-2.)
767	21780	(?)	*Fabrication of the T-1 Bombsight.* (F. M. Reck, Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 118-120.)
768	21782	U.S.A. ...	*Colour Code for Drill Jigs Speeds Output.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 153.)
769	21784	U.S.A. ...	*Rapid and Accurate Location of the Exact Centre of a Hole to be Centre-punched is Provided through Application of a Transparent Bell Cap.* (Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 133-5.)
770	21900	G.B.	*Production Milling—Modern Practice with Hydraulically Operated Machines.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 137-144.)
771	21907	G.B.	*Contour Machining—a Recent American Development for Automatic Control on Monarch Lathes.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 153-5.)
772	21986	U.S.A. ...	*Tool Grinding (New Wright Method).* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 66.)
773	22014	G.B.	*Flotation Inspection of Castings.* (Metal Industry, Vol. 64, No. 15, 14/4/44, p. 228.)
774	22098	U.S.A. ...	*Quantity Production of Gyro Compass at Dodge plant.* (J. Geschelin, Automotive and Aviation Industries, Vol. 30, No. 4, Feb. 15th, 1944, pp. 18-21, 60-4.)
775	22159	G.B.	*Securing a Thin Gear to Shouldered End of Shaft.* (Machinery, Vol. 64, No. 1643, 6/4/44, p. 379.)
776	22160	G.B.	*Ordnance Components Mass Produced by Pressed Metal Technique.* (C. F. Graves Carpenter, Machinery, Vol. 64, No. 1643, 6/4/44, pp. 380-381.)
777	22261	G.B.	*Scroll Turning on Bend Face (Gear Cutting).* (Machinery, Vol. 64, No. 1642, March 30th, 1944, p. 343.)
778	22262	G.B.	*Faster Tool Grinding with Cup Wheels.* (Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 345-346.)

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779	22265	G.B. ...	... *Location of Fork Ends for Interchangeability.* (Machining of Mating Parts). (Machinery, Vol. 64, No. 1642, March 30th, 1944, p. 348.)
780	22289	U.S.A.	... *High Degree of Flexibility at Cleveland Graphite Bronze Co. Plant (Manufacture of Sleeve Bearings and Bushings).* (J. Geschelin, Automotive and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 20-4, 81-4.)
			Tools and Equipment.
781	21102	U.S.A.	... *Rivet Dispenser Facilitates Production Line Procurement.* (Aero Digest, Vol. 43, No. 4, pp. 299-303.)
782	21104	U.S.A.	... *Collet Permits Re-use of Broken Drills.* (Aero Digest, Vol. 43, No. 4, Oct., 1943, p. 305.)
783	21105	U.S.A.	... *Blower Brush Speeds Cleaning Off Paint Dust.* (Aero Digest, Vol. 43, Oct., 1943, pp. 305-7.)
784	21197	U.S.A.	... *Boeing Die Pierces 976 Holes in 10 Parts During 5 Press Operations.* (Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 40, 102-4.)
785	21218	Germany	... *Torsion Fatigue Testing Machine for Large Parts.* (Z.V.D.I., Vol. 88, Nos. 3-4, 22/1/44, p. 54.)
786	21252	G.B. ...	... *Machining Cylinder Fins—New Special Purpose Maxicut Lathe for Aero Engine Work.* (Aircraft Production, Vol. 6, No. 66, April, 1944, pp. 155-6.)
787	21403	Germany	... *Rivet Sorting Machine* (Junkers). (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 370.)
788	21405	Germany	... *Jig for Flame Cutting of Steel Plate* (Pat. 719626). (Der Flieger, Vol. 22, No. 12, Dec., 1943, p. 371.)
789	21590	U.S.A.	... *Chip Control with Sintered-Carbide-Tipped Tools.* (M. F. Judkins, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 201-2.)
790	21642	France	... *Cinema Film Applied to Electronic Misroscope.* (P. Millay, Science et Vie, Vol. 64, No. 314, Oct., 1943, pp. 146-151.)
791	21762	U.S.A.	... *Development of Tube-Flaring Machine (Speeds up Joining of Aluminium Tubes).* (Aero Digest, Vol. 44, No. 2, 15/1/44, pp. 197-9.)
792	21763	U.S.A.	... *Rivet Sorting Machine Speeds Reclamation Work.* (Aero Digest, Vol. 44, No. 2, 15/1/44, p. 199.)
793	21773	U.S.A.	... *Elusive Rivet Now Under Control (Curtiss-Wright System: Refrigerated Storage, Distribution Methods).* (Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 90-2, 202.)
794	21777	U.S.A.	... *Basic Advantages of All-Plastic Dies and Die-Sets.* (D. Cook, Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 106-108.)
795	21778	U.S.A.	... *Goodyear's Precision Assembly Jigs (Designed for Interchangeability).* (D. P. Reynolds and C. R. Youmans, Aero Digest, Vol. 44, No. 3, Feb., 1944, p. 110-112.)

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796	21783	U.S.A. ...	*Adjustable Drill Bar Permits Fine Tolerances.* (Aero Digest, Vol. 44, No. 3, Feb. 1944, pp. 153-5.)
797	21787	U.S.A. ...	*Westinghouse Dynetric Balancing Machine* (Photo). (Aero Digest, Vol. 64, No. 3, Feb., 1944, p. 166.)
798	21962	U.S.A. ...	*Special Horizontal Jigs Boost Aircraft Panel Fabrication (Horizontal) Masonite Jigs for Drilling Operations).* (R. H. Rund, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 176-7.)
799	21974	U.S.A. ...	*Piston Ring Lapping Machine.* (Aviation, Vol. 43, No. 1, Jan., 1944, p. 221.)
800	21982	U.S.A. ...	*A New High Frequency Electronic Flaw Detector for Metal Tubing.* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 57.)
801	21995	U.S.A. ...	*Propeller Checking Done by Automatic X-Ray Equipment.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 80-1.)
802	22000	U.S.A. ...	*Piston Machining Simplified by Use of Ingenious Jig.* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 85.)
803	22004	U.S.A. ...	*New Pneumatically Operated Rivet Driver (Four Blind Rivets a Minute).* (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 90.)
804	22157	G.B.	*Slinging Turret Lathes and Automatics.* (Machinery, Vol. 64, No. 1643, 6/4/44, pp. 377-379.)
805	22161	G.B.	*Drill Jig for Small Parts.* (C.P.A., Machinery, Vol. 64, No. 1643, 6/4/44, p. 381.)
806	22165	G.B.	*Arc Welding Equipment* (Metropolitan Vickers). (Electrical Times, Vol. 105, No. 2736, 30/3/44, pp. 374-375.)
807	22263	G.B.	*Unusual Clamping Device for Profile Machining.* (S. H. Smith, Machinery, Vol. 64, No. 1642, March 30th, 1944, p. 346.)
808	22293	U.S.A. ...	*Universal Welding Jig Clamp.* (Automative and Aviation Industries, Vol. 90, No. 1, 1/1/44, pp. 32-3, 88.)

Scrap Salvage, Fuel Economy.

809	21388	Germany ...	*Example of Fuel Saving in German Industry due to activities of the Technical Control Committees.* (Schaffende Heimat, Vol. 12, No. 1, 6/2/44, p. 7.)
810	21500	G.B.	*Brass Cartridge Scrap—The Fundamental Principles of Conservation.* (H. A. Anderson and C. H. Samans, Metal Industry, Vol. 64, No. 13, 31/3/44, p. 196.)
811	21582	U.S.A. ...	*Chip Disposal Methods.* (F. J. Oliver, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 163-8.)
812	21964	U.S.A. ...	*Winning the War with Scrap* (North American Aviation Scheme). (Aviation, Vol. 43, No. 1, Jan., 1944, pp. 184-7, 360.)

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			Workers' Welfare.
813	21463	U.S.A. ...	*Storage and Protection of Flammable Liquids.* (H. E. Nowell, Metal Finishing, Vol. 41, No. 10, Oct., 1943, pp. 681-3.)
814	21467	G.B.	*Industrial Fatigue and Social Medicine.* (P. Sargant Florence, Nature, Vol. 153, No. 3882, 25/3/44, pp. 363-364.)
815	21503	G.B.	*Welding Headshield.* (Metal Industry, Vol. 64, No. 13, 31/3/44, p. 200.)
816	21509	G.B.	*Industrial Welfare.* (Engineer, Vol. 177, No. 4603, 31/3/44, p. 249.)
817	21581	U.S.A. ...	*Some Psychological Factors Favouring Industrial Inventiveness.* (E. D. Smith, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 159-162.)
818	21686	G.B.	*Welding Helmet.* (Sheet Metal Industries, Vol. 19, No. 204, p. 694.)
819	21908	G.B.	*Factory Illumination—Effects of Good Lighting on Production.* (Automobile Engineer, Vol. 34, No. 448, April, 1944, p. 156.)
			ROAD AND RAIL TRANSPORT (ARMY VEHICLES, LOCOMOTIVES, ETC.).
820	21203	U.S.A. ...	*Mack Production of Army Transport Vehicles for Overseas.* J. Geschelin, Automotive and Aviation Industries, Vol. 90, No. 2, 15/1/44, pp. 22-5, 104-6.)
821	21241	G.B.	*The Light Alloy Motorcycle.* (Light Metals, Vol. 7, No. 74, March, 1944, pp. 117-121.)
822	21322	Switzerland ...	*Electric Steam Raising for Locomotives (Digest) (From Bulletin Schweiz Elektrotch. Verein, Vol. 34, No. 8, April 21, 1943, pp. 210-24).* (W. Muller and E. Meyer, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 6-7.)
823	21377	U.S.A. ...	*War Tyres—Availability and Performance.* (P. W. Drew, S.A.E. Journal, Vol. 52, No. 1, Jan., 1944, pp. 13-10.)
824	21378	U.S.A. ...	*A Method of Predicting Life of Tractor Bearings.* (J. Borland, S.A.E. Journal, Vol. 52, No. 1, Jan., 1944, pp. 19-27.)
825	21583	U.S.A. ...	*Diesel-Electric Locomotive Ratings.* (B. S. Cain, Mechanical Engineering, Vol. 66, No. 3, March, 1944, pp. 169-172, 182.)
826	21645	France ...	*The Evolution of the Locomotive from the Piston Engine to the Gas Turbine.* (C. Tourneur, Science et Vie., Vol. 64, No. 314, Dec., 1944, pp. 243-255.)
827	21689	G.B.	*Welding in the Maintenance of Road Passenger Vehicles.* (H. H. Charles and G. Deacon, Sheet Metal Industries, Vol. 19, No. 204, pp. 701-4.)
828	21901	G.B.	*A New Free Wheel Type Transmission Gear for ...Motor Vehicles.* (B. Vallance, Automobile Engineer, Vol. 34, No. 448, April, 1944, pp. 144-5.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
829	22101	U.S.A.	... *Enemy Vehicles.* (G. M. Barnes, Automotive and Aviation Industries, Vol. 30, No. 4, Feb. 15th, 1944, pp. 30-3, 80-2.)
830	22228	U.S.A.	... *Aircraft Engines in Tanks.* (G. Waine Thomas, S.A.E. Preprint, April 5-7th, 1944, New York Meeting, pp. 1-6.)

WIRELESS AND ELECTRICITY.

Radio (for Aircraft and Army).

831	21335	G.B. ...	... *Army Mobile Wireless Stations.* (Engineering, Vol. 157, No. 4080, March, 1944, pp. 227-8.)
832	21412	U.S.A.	... *Mountain Effects and the Use of the Radio Compasses and Radio Beacons for Piloting.* (Busignies, Electrical Communication, Vol. 19, No. 3, 1940-41, p. 44.)
833	21485	G.B. ...	... *Germans Report R.A.F. Use Small Radio Set Suspended from a Balloon (Dropped over Target and Emits Direction Finding Note).* (Aeroplane, Vol. 66, No. 1713, 24/3/44, p. 322.)
834	21706	G.B. ...	... *Comparative Merits of Different Types of Directive Aerials for Communications* (Discussion). (Journal of the Institution of Electrical Engineers, Vol. 91, No. 13, Part III, March, 1944, pp. 12-13.)
835	21708	G.B. ...	... *On Estimating the Total Output of a Curtain Array of Aerials and the Current Distribution Among its Members.* (E. B. Moullin, Journal of the Institution of Electrical Engineers, Vol. 91, No. 13, Part III, March, 1944, pp. 23-30.)
836	21750	G.B. ...	... *Beam or Bearing? (Comparison of British QDM. System of Direction Finding and the American System of Radio Range Plying).* (D. Brice, Aeronautics, Vol. 10, No. 2, March, 1944, p. 52.)
837	21790	G.B. ...	... *Radiolocation (Extracts from Swedish Journal Flyg, No. 2, 1944).* (Aeroplane, Vol. 66, No. 1714, 31/3/44, p. 348.)
838	21849	G.B. ...	... *Radio and Lighting in Commercial Aviation.* (H. K, Bourne, Electrician, Vol. 132, No. 3434, 24/3/44, p. 248.)
839	22119	G.B. ...	... *Radio in Post War Flying (C.A.A. Plans).* (C. Stanton, Aeroplane, Vol. 66, No. 1715, 7/4/44, p. 381.)
840	22201	G.B. ...	... *Tracking in Superheterodyne Receivers—Part II.* (S. W. Amos, Electronic Engineering, Vol. 16, No. 194, April, 1944, p. 460.)
841	22249	G.B. ...	... *V.H.F. Wavemeter. Range 70-270 Mc.s, with Quartz Crystal Frequency Standard.* (A. H. Beattie, L. Knight, Wireless World, Vol. 50, No. 3, March, 1944, pp. 66-69.)
842	22250	G.B. ...	... *Radio Heating.* (L. L. Langton, Wireless World, Vol. 50, No. 3, March, 1944, pp. 70-72.)
843	22251	G.B. ...	... *Novel P-A Gear. (Volume of Loudspeakers varies with noise of Surroundings).* (Wireless World, Vol. 50, No. 3, March, 1944, pp. 73-74.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
844	22252	G.B.	...	*Aircraft Radio* (*Review of Book by P. C. Sandretto*). (Charles Bovill, Wireless World, Vol. 50, No. 3, March, 1944, pp. 79-81.)
845	22253	G.B.	...	*Matching III—Transmitter Aerial Couplings.* (S. W. Amos, Wireless World, Vol. 50, No. 3, March, 1944, pp. 86-87.)
846	22254	G.B.	...	*Radio Data Charts 15. I.F. Transformer Design.* (J. McG. Somerby, Wireless World, Vol. 50, No. 3, March, 1944, pp. 82-85.)
847	22256	G.B.	...	*Radio Beacons* (*Brit. Patent Application* 556476). (Wireless World, Vol. 50, No. 3, March, 1944, p. 96.)
				Television, Telegraphy, etc.
848	21109	G.B.	...	*Class C Telegraphy. The graphical determination of optimum operating conditions for transmitting valves* (*From Wireless Engineer, Sept.*, 1942). (D. G. Prinz and R. G. Mitchell, Misc. Reprints, pp. 401-7.)
849	21538	Germany	...	*Background Noise in Short Valve Telegraphic Transmitters* (*Digest*). (G. Schmidt, E.T.Z., Vol. 63, Dec., 1942, pp. 586-857.)
850	21704	G.B.	...	*Wireless Section: Chairman's Address* (*Review of Thermionic Valve Manufacturing Progress—Television, etc.*). (T. E. Golding, Journal of the Institution of Electrical Engineers, Vol. 91, No. 13, Part III, March, 1944, pp. 2-11.)
851	21705	G.B.	...	*The Rôle of Ultra High Frequencies in Post-War Broadcasting* (Discussion). (Journal of the Institution of Electrical Engineers, Vol. 91, No. 13, Part III, March, 1944, pp. 11-12.)
852	22003	U.S.A.	...	*New Microphone Developed for Use in Tanks and Aircraft* (*Use of Fiberglass Washers to obtain clear Transmission of Speech*). (Scientific American, Vol. 170, No. 2, Feb., 1944, p. 60.)
				General Electricity.
853	21111	G.B.	...	*High Frequency Resistance of Plated Conductors* (*From Wireless Engineer, Feb.*, 1943, *Vol.* 20). (R. F. Proctor, Misc. Reprints, pp. 56-65.)
854	21112	G.B.	...	*Diode Frequency Changers* (*From Wireless Engineer, Jan.*, 1943, *Vol.* 20). (E. G. James and J. E. Houldin, Misc. Reprints, pp. 13-27.)
855	21113	G.B.	...	*Impedence Transformations in Band-pass Filters* (*From Wireless Engineer, Nov.*, 1943, *Vol.* 20). (A. S. Gladwin, Misc. Reprints, pp. 540-7.)
856	21114	G.B.	...	*The Transmission Characteristics of Asymmetric-Sideband Communication Networks* (*Part* I) (*From J. of I.E.E., Vol.* 89, *Part III, No.* 5, *March*, 1942). (E. C. Cherry, Misc. Reprints, pp. 19-42.)
857	21115	G.B.	...	*The Transmission Characteristics of Asymmetric-Sideband Communication Networks* (*Part III*) (*From J. of I.E.E., Vol.* 90, *Part III, No.* 10, *June*, 1943). (E. S. Cherry, Misc. Reprints, pp. 75-88.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
858	21116	G.B. ...	...	*Travelling Waves in High-Voltage Alternator Windings* (*From J. of I.E.E., Vol.* 89, *Part II, No.* 11, *Oct.*, 1942). (E. Friedlander, Misc. Reprints, pp. 493-506.)
859	21165	G.B. ...	...	*Voltage Fluctuations in Resistors* (*Johnson Effect*) (*From Phil. Mag. Ser.* 7, *Vol.* 34, *April*, 1943). (N. R. Campbell and V. J. Francis, Misc. Reprints, pp. 259-265.)
860	21265	G.B. ...	...	*The Electric Spark Discharge in Different Gases.* (T. E. Allibone and J. N. Meek, Journal of Scientific Instruments, Vol. 21, No. 2, Feb., 1944, pp. 21-7.)
861	21319	Germany	...	*Short Time Rating of Electrical Machinery* (Digest) (From E.T.Z., Vol. 64, Nos. 25-6, July 1, 1943, p. 354). (Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 3-12.)
862	21321	Hungary	...	*Weight of Steel Lattice Poles for Long Distance Lines* (Digest). (From Elektrotechnika, Budapest, Vol. 36, No. 7, July, 1943, p. 192-7). (V. Pantyik, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, pp. 7-9.)
863	21329	G.B. ...	...	*Ammeter Shunts.* (G. W. Stubbings, Electrician, Vol. 132, No. 3432, March, 1944, pp. 203-4.)
864	21331	G.B. ...	...	*Resistance Measurements.* (F. R. Axworthy, Electrical Times, Vol. 105, No. 2734, March, 1944, pp. 308-9.)
865	21351	G.B. ...	...	*Electrical Research*, 1943. (Electrician, Vol. 132, No. 3427, 4/2/44, pp. 104-6.)
866	21418	U.S.A.	...	*No. 4 Selenium Rectifier and Principles of Their Design.* (J. E. Yarmack, Electrical Communication, Vol. 20, 1941-42, pp. 275-286.)
867	21419	U.S.A.	...	*Electrical Strength of Nitrogen and Freon under Pressure.* (E. H. Skilling and W. C. Brenner, Electrical Communication, Vol. 20, 1941-42, pp. 287-294.)
868	21421	U.S.A.	...	*Wavelength Measurements of dm. cm. and mm. waves.* (A. G. Clavier, Electrical Communication, Vol. 20, 1941-42, pp. 295-307.)
869	21535	Germany	...	*Measurement of High-Frequency Electric Currents.* (*Thermal, Dynamometric and Valve Circuits*). (H. F. Grave, E.T.Z., Vol. 63, Dec., 1942, pp. 578-583.)
870	21613	U.S.A.	...	*Power Pulsation Between Synchronous Generators.* (T. Warmings, A.S.M.E. Preprints, June, 1942, pp. 1-9.)
871	21641	U.S.S.R.	...	*Dielectric Losses in Boron Classes at High Frequencies.* (R. M. Kessenich, J. Tech. Phys. U.S.S.R., Vol. XI., No. 12, 1941, pp. 1147-1153.)
872	21650	U.S.A.	...	*1,000 Cycle Sine Wave.* (The Review of Scientific Instruments, Vol. 15, No. 1, Jan., 1944, p. 14.)
873	21707	G.B. ...	...	*Screening Properties of a Squirrel Cage of Wires.* (E. B. Moullin, Journal of the Institution of Electrical Engineers, Vol. 91, No. 13, Part III, March, 1944, pp. 13-22.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
874	21711	G.B.	...	*The Possible Application of New and Accelerated Technique to Peacetime Problems (Insulation, Materials, Metadyne Control, High-Frequency Currents, etc.).* (G. H. Fletcher, Journal of the Institution of Electrical Engineers, Vol. 91, No. 39, Part I, March, 1944, pp. 126-9.)
875	22169	G.B.	...	*Insulation Tracking (Simple Testing Methods and Results).* (W. A. McNeill and J. Rubinstein, Electrical Review, Vol. 134, No. 3462, 31/3/44, pp. 444-446.)
				Magnetism.
876	21414	U.S.A.	...	*Electromagnetic Waves in Metal Tubes of Rectangular Cross-Section.* (J. Kemp, Electrical Communication, Vol. 20, 1941-42, pp. 73-79.)
877	21416	U.S.A.	...	*Theory of the Magnetron.* (L. Brillovin, Electrical Communication, Vol. 20, 1941-42, pp. 112-121.)
878	21520	Germany	...	*Lecture Experiments Showing Electromagnet Operating by Super Conduction at 10°C. (excitation current switched off).* (E. Jush, E.T.Z., Vol. 63, Dec., 1942, pp. 577-578.)
879	21928	G.B.	...	*The Winding of Coils for Magnetic Sorting Apparatus (Sorting of Mixed Steels).* (R. J. Brown and J. H. Bridle, Engineer, Vol. 177, No. 4605, 14/4/44, p. 291.)
880	22164	G.B.	...	*Magnetostriction and Supersonics.* (H. E. Hutter, Electrical Times, Vol. 105, No. 2736, 30/3/44, pp. 368-360.)
				Electronics.
881	21415	U.S.A.	...	*Effect of Space Charge on the Potential of Electron Paths of Electron Beams.* (D. P. R. Petrie, Electrical Communication, Vol. 20, 1941-42, pp. 100-111.)
882	21420	U.S.A.	...	*Simplified Methods for Determining the Optical Characteristics of Electron Lenses.* (K. Spangerberg and L. M. Fidd, Electrical Communication, Vol. 20, 1941-42, pp. 305-313.)
883	21651	U.S.A.	...	*Snap Action Sensitive Relays (for Highly-Sensitive Vacuum Tube Applications).* (The Review of Scientific Instruments, Vol. 15, No. 1, Jan., 1944, p. 15.)
884	21845	U.S.A.	...	*Electronic Ice-Pick (Goodrich Device).* (American Aviation, Vol. 7, No. 19, 1/3/44, p. 80.)
885	21981	U.S.A.	...	*Supercontrol by Electronics.* (Scientific American, Vol. 170, No. 2, Feb., 1944, pp. 55-7.)
886	22131	G.B.	...	*Electrostatic Electron Lenses.* (Nature, Vol. 153, No. 3884, 8/4/44, pp. 441-2.)
887	22203	G.B.	...	*Some Unusual Applications of the Double Beam Cathode Ray Oscillograph.* (G. N. Patchett, Electronic Engineering, Vol. 16, No. 194, April, 1944, pp. 467-470.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
888	22206	G.B.	*An Electronic Baby Alarm* (*Use of Rectified Reaction Relay Amplifier*). (J. S. Worthington, Electronic Engineering, Vol. 16, No. 194, April, 1944, pp. 476-7.)
889	22258	G.B.	*Velocity Modulation* (*of an electron stream for Ultra Short Waves* (*British Patent Application* 555162). (Wireless World, Vol. 50, No. 3, March, 1944, p. 96.)

SOUND, LIGHT AND HEAT.

Heat Conductivity.

890	21320	Czecho-slovakia ...	*Heat Conductivity of Mixed Cases* (*Digest*) (*for Flue Gas Analysis, etc.*) (*From Elektrotechniky Obzor, Prague, Vol.* 31, *No.* 12, *Dec.*, 1942, *p.* 188). (M. Salamon, Engineers' Digest, Vol. 5, No. 1, Jan., 1944, p. 9.)
891	21430	Germany ...	*The Temperature of an Unheated Body in a High Velocity Gas Stream* (R.T.P. Translation No. TM 1,000). (E. Eckert and W. Weise, Forschung, Vol. 12, No. 1, Jan.-Feb., 1941. pp. 40-50.)
892	21469	G.B.	*Simple Sensitive Flames.* (C. A. Sutherland, Nature, Vol. 153, No. 3882, 25/3/44, pp. 376-377.)
893	21523	G.B.	*On the Problem in Heat Conduction.* (C. J. Tranter, Philosophical Magazine, Vol. 35, No. 241, Feb., 1944, pp. 102-5.)
894	21532	U.S.A. ...	*High Temperature—Steam Corrosion Studies at Detroit.* (I. A. Rohrig, R. M. van Düzer, C. H. Fellows, A.S.M.E. Preprint, Nov. and Dec., 1943, pp. 1-12.)
895	21610	Germany ...	*The Process of Evaporation and Heat Transfer in the Boundary Layer* (Digest). (W. Pruger, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 258-260.)
896	21629	U.S.A. ...	*Heat Transfer and Fluid Resistance in Ljungstrom Regenerative Type Air Preheaters.* (H. Karlsson and S. Holm, A.S.M.E. Preprints, 1942, pp. 1-11.)
897	21632	U.S.A. ...	*Heating Wartime Housing.* (R. K. Thulman, A.S.M.E. Preprints, 1942, pp. 1-7.)
898	21639	U.S.S.R. ...	*Thermodynamic Analysis of the Working of the Ledue Air Jet Propeller.* (G. A. Varshavsky, J. Tech. Phys. U.S.S.R., Vol. XI., No. 12, 1941, pp. 1128-1132.)
899	21684	G.B.	*Infra-Red Heating by Gas.* (Sheet Metal Industries, Vol. 19, No. 204, p. 686.)
900	22046	U.S.A. ...	*Heat Transmission* (*Book Review*). (W. H. McAdams, Applied Mathematics Quarterly, Vol. 1, No. 2, July, 1943, pp. 193-6.)
901	22219	U.S.A. ...	*The Influence of Through Metal on the Heat Loss From Insulated Walls* (Conduction of Heat). (Victor Pasckis and Michael S. Heisder, A.S.M.E. Preprint, April 3-5th, 1944.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Light.
902	21167	G.B.	*The Application of Low Pressure Fluorescent Lamps.* (*From the Transactions of the Illuminating Engineering Soc., Vol.* 8, *No.* 9, Dec., 1943.) (W. R. Stevens, Misc. Reprints, p. 23.)
903	21524	G.B.	*New Contributions to Interferometry, Part II—New Interference Phenomena with Newton's Rings.* (S. Tolansky, Philosophical Magazine, Vol. 35, No. 241, Feb., 1944, pp. 120-136.)
904	21640	U.S.S.R. ...	*A Low-Voltage Hydrogen-Arc Lamp.* (M. R. Ivanova, J. Tech. Phys. U.S.S.R., Vol. XI, 1941, pp. 1140-1145.)
905	22038	U.S.A. ...	*Measurement of the Refractive Index and Dispersion of Optical Glass for Control of Product.* (H. L. Gurewitz, L. W. Tilton, Jour. of Research of The Nat. Bur. of Standards, Vol. 32, No. 1, Jan., 1944, pp. 39-43.)
906	22055	U.S.A. ...	*On Herzberger's Direct Method in Geometrical Optics* (*Ray Tracing*). (J. L. Synge, Applied Mathematics Quarterly, Vol. 1, No. 3, Oct., 1944, pp. 268-272.)
907	22283	U.S.A. ...	*A Direct Image Error Theory* (*Geometrical Optics*). (M. Herzberger, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1944, pp. 69-77.)
			Sound Waves.
908	21431	Germany ...	*The Two Dimensional Undamped Pressure Wave of Large Amplitude.* (H. Pfriem, Forschung, Vol. 12, No. 1, Jan.-Feb., 1941, pp. 51-64.)
909	21606	Germany ...	*Laws of Reflection of Two Dimensional Pressure Waves of Large Amplitude.* (H. Pfriem, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 244-256.)
910	22072	Germany ...	*Vibration Table for Dynamic Tests in the Sonic Frequency Ranges.* (F. L. Meister, A.Z., Vol. 7, No. 2, March, 1942, pp. 51-56)
			PHOTOGRAPHY.
911	21228	U.S.A. ...	*Aerial Photography for Airport Selection.* (American Aviation, Vol. 7, No. 18, 15/2/44, p. 34.)
912	21536	Germany ...	*The Agfa Colour Film Process.* (H. Lummerheim, E.T.Z., Vol. 63, Dec., 1942, pp. 583-587.)
913	21851	France ...	*How Animated Cartoons are Made.* (P. Brard, Science et la Vie, Vol. 65, No. 317, Jan., 1944, pp. 27-37.)
914	21874	U.S.A. ...	*Motion Analysis by Means of High-Speed Photography.* (H. D. Jackes, S.A.E. Journal, Vol. 52, No. 2, Feb., 1944, pp. 49-53.)
			METEOROLOGY.
915	21435	G.B.	*Ground and Cloud Scatter of Electromagnetic Radiation.* (T. I. Eckersley and others, Nature, Vol. 153, No. 3881, 18/3/44, p. 341.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
916	21527	G.B.	*The Dissipation of Natural Fog, 1931 to 1941 (Sci. Lib. Bib., 603).* (Science Library Bibliographical Series, Nos. 601, 603, 602, 604.)
917	21528	G.B.	*Cloud Formation and Dispersal by Aeroplanes, 1935-1942 (Sci. Lib. Bib., 603).* (Science Library, Bibliographical Series, Nos. 601, 603, 602, 604.)
918	21714	U.S.A. ...	*The Elements of Celestial Navigation.* (P. N. Weems, Flying, Vol. 34, No. 2, Feb., 1944, pp. 34, 90.)
919	21978	U.S.A. ...	*Precomputed Sunline Approaches in Celestial Aviation, Organisation.* (J. B. Rea, Aviation, Vol. 43, No. 1, Jan., 1944, pp. 231, 334-342.)

PHYSIOLOGY AND AVIATION MEDICINE.

920	21175	G.B.	*" Auris Hominis " (The Ear as the Most Sensitive Device for the Detection of Sound Waves).* (O. G. Barker, Journal Institution of Electrical Engineers, Vol. 91, No. 38, Feb., 1944, pp. 60-4.)
921	21204	U.S.A. ...	*Medical Problems in an Overseas Air Transport Service.* (E. Day and others, Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 2-8.)
922	21205	U.S.A. ...	*The Problem of Fatigue Among Student Pilots at the Naval Air Training Centre, Pensacola, Florida. .* (A. Graybiel and others, Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 9-25.)
923	21206	U.S.A. ...	*Flight Testing of Items of Medical Equipment used by Military Pilots and their crews.* (W. R. Lovelace and J. A. Resch, Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 26-31.)
924	21207	U.S.A. ...	*The Use of a Gas Mask for the Relief of Occluded Eustachian Tubes and Sinuses.* (O. S. Gibbs, Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 32-5, 42.)
925	21208	U.S.A. ...	*Aeroneurosis.* (S. Schnur, Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 36-42.)
926	21209	U.S.A. ...	*Winter Flying Clothing.* (Aviation Medicine, Vol. 15, No. 1, Feb., 1944, pp. 31, 56.)
927	21323	G.B.	*Otitic and Sinus Barotrauma (Aviator's Ear) (Abstract) (Canadian Med. Ass. J., 1943, Oct., Vol. 4, pp. 301-5).* (J. G. Mackenzie, Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, pp. 419-420.)
928	21324	G.B.	*A New Method for Treatment of Acute Aero-Otitis Media (Abstract) (Ann Otol, Rhinol and Laryngol, Sept., 1943, Vol. 52, No. 3, pp. 581-8).* (R. H. Wiseheart, Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, pp. 420-1.)
929	21325	G.B.	*Tooth Temperature with Reference to Dental Pain While Flying (Brit. Dental J., Nov. 5, 1943, Vol. 75, No. 9, pp. 221-8).* (W. Harvey, Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, p. 421.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
930	21326	G.B. ...	...	*Toothache and the Aviator: A Study of Tooth Pain Provoked by Simulated High Altitude Runs in Low Pressure Chamber* (*U.S. Nav. Med. Bull.*, 1943, *Nat. No.* 41, *No.* 3, *pp.* 643-6). (I. Joseph and others, Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, p. 421.)
931	21327	G.B. ...	...	*Acceleration of Co-ordinates Muscular Effort by Nicotinamide. Preliminary Report to the Medical Research Council.* (*Brit. Med. J., Nov.* 13, 1943, pp. 601-3). (I. M. Frankau, Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, pp. 425-6.)
932	21328	G.B. ...	...	*Conditions for Industrial Health and Efficiency, Pamphlet No. 1. Ventilation and Heating, Lighting and Seeing* (*H.M.S.O. Publication*). (Bulletin of War Medicine, Vol. 4, No. 7, March, 1944, pp. 421-2.)
933	21466	G.B. ...	...	*Brain Rhythms* (*electroencephalograms*). (E. A. Adrian, Nature, Vol. 155, No. 3882, 25/3/44, pp. 360-362.)
934	21470	G.B. ...	...	*Effect of Drinking Small Quantities of Sea Water.* (W. S. S. Ladell, Nature, Vol. 153, No. 3882, 25/3/44, p. 385.)
935	21767	U.S.A.	...	*The Oximeter Aids in Aero-medical Research* (*Determines Oxygen Content of Blood*). (Aero Digest, Vol. 44, No. 3, Feb., 1944, pp. 56, 124.)
936	22128	G.B. ...	...	*Medical and Surgical Achievement in the U.S.S.R. During the War.* (E. H. Carling, Nature, Vol. 153, No. 3884, 8/4/44, pp. 419-424.)
936	22128	G.B. ...	...	*The Airborne Surgical Unit.* (Nature, Vol. 153, No. 3884, 8/4/44, p. 429.)
938	22205	G.B. ...	...	*High Frequency Therapy—Part VIII.* (W. O. Oliphant, Electronic Engineering, Vol. 16, No. 194, April, 1944, pp. 472-4.)
939	22271	G.B. ...	...	*The Ear Drum as Variometer.* (A. E. Slater, Sailplane, Vol. 12, No. 2, pp. 2-3.)
940	21164	G.B. ...	...	*The Evaluation of the Complex Roots of Algebraic Equations.* (*From Phil. Mag. Ser.* 7, *Vol.* 34, *p.* 314, *May*, 1943.) (A. F. Cornock and J. M. Hughes, Misc. Reprints, pp. 314-320.)
941	21234	G.B. ...	...	*Mathematics in Engineering—I.* (R. G. Manley, Engineering, Vol. 157, No. 4079, March, 1944, pp. 203-4.)
942	21333	G.B. ...	...	*Mathematics in Engineering—II. contd.* (R. G. Manley, Engineering, Vol. 157, No. 4080, March, 1944, pp. 224-5.)
943	21355	G.B. ...	...	*The Simultaneous Trisection and Quadrisection of the Triangle.* (M. H. Haddock, Machinery, Vol. 64, No. 1639, 9/3/44, pp. 263-5.)
944	21357	G.B. ...	...	*A Method of Measuring the Thickness of Helical Involute Gear Teeth.* (J. Reimer, Machinery, Vol. 64, No. 1639, 9/3/44, pp. 266-8.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
945	21522	G.B. ...	...	*The Geometry of Demagnetizing Curves, and its Consequences for Permanent Magnet Materials.* (K. Hoselitz, Philosophical Magazine, Vol. 35, No. 241, Feb., 1944, pp. 91-102.)
946	21603	Germany	...	*Stabilisation of Vibrations Characterised by the Mathieu linear differential equation with periodic coefficients.* (K. Klotter, Forschung, Vol. 12, 5, Sept.-Oct., 1941, pp. 209-225.)
947	21604	Germany	...	*Investigation on energy balance and phase displacement of non-linear systems with the aid of a rolling track undergoing periodic displacement.* (L. Cremer, Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 226-236.)
948	21885	G.B. ...	...	*Basic Mathematics and the Engineer.* (Engineer, Vol. 177, No. 4604, 7/4/44, pp. 270-1.)
949	22013	U.S.A.	...	*The Transformation of Partial Differential Equations.* (H. Bateman, Applied Mathematics Quarterly, Vol. 1, No. 4, Jan., 1944.)
950	22039	U.S.A.	...	*Forced Vibrations of Systems with Nonlinear Restoring Force.* (K. O. Friedrichs and J. J. Stoker, Applied Mathematics Quarterly, Vol. 1, No. 2, July, 1943, pp. 97-115.)
951	22045	U.S.A.	...	*Introduction to Non-linear Mechanics (Annals of Mathematic Studies No. 11) (Translation from the Russian) (Published by the Princetown University Press,* 1943) (Book Review). (N. Kryloff and N. Bogolluboff, Applied Mathematics Quarterly, Vol. 1, No. 2, July, 1943, pp. 192-3.)
952	22050	U.S.A.	...	*On Moment Balancing in Structural Dynamics.* (R. E. Gaskell, Applied Mathematics Quarterly, Vol. 1, No. 3, Oct., 1943, pp. 237-249.)
953	22051	U.S.A.	...	*Periodic Properties of the Semi-Permanent Atmospheric Pressure Systems.* (H. J. Stewart, Applied Mathematics Quarterly, Vol. 1, No. 3, Oct., 1943, pp. 262-7.)
954	22053	U.S.A.	...	*A Chart for Plotting Relations Between Variables over their Entire Real Range (from $-\infty$ to $+\infty$).* (L. H. Donnell, Applied Mathematics Quarterly, Vol. 1, No. 3, Oct., 1943, pp. 276-7.)
955	22076	G.B. ...	...	*Graphical Methods for Treating Technical Problems.* (T. H. Blakeley, Chemistry and Industry Weekly, No. 16, 15/4/44, p. 130.)
956	22153	G.B. ...	...	*Gauging the Tooth Thickness of Helical Gears.* (A. Ryding, Machinery, Vol. 64, No. 1643, 6/4/44, pp. 371-373.)
957	22267	G.B. ...	...	*Geometrical v. Arithmetrical Progression (For Spindle Speeds of Lathes).* (F. W. Sturman, Machinery, Vol. 64, No. 1642, March 30th, 1944, pp. 349-352.)
958	22278	U.S.A.	...	*Tooling up Mathematics for Engineering.* (T. von Karman, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 2-6.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
959	22285	U.S.A. ...	*Notes on A. C. Aitken's Paper* (" *On Interpolation of Proportional Parts, without the Use of Differences* "). (W. Feller, Quarterly of Applied Mathematics, Vol. 1, No. 1, April, 1943, pp. 66-7.)

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July, 1944

Abstracts from the Scientific and Technical Press

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TOGETHER WITH

List of Selected Translations

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NOTE.—As far as possible, the country of origin quoted in the items refers to the original source.

The Propagation of 2 Dimensional Disturbance in Gases in the Absence of Friction. (K. Bechert, Ann. d. Phys., Vol. 37 (1940), pp. 89-123, and Vol. 38 (1940), pp. 1-25.) (125/1 Germany.)

In the absence of friction, the 2 dimensional disturbance must satisfy the following simultaneous differential equations :—

$$\frac{\partial \rho}{\partial t} + u\frac{\partial \rho}{\partial x} + \rho\frac{\partial u}{\partial y} = o \qquad . \quad . \quad . \quad . \quad (1)$$

$$\frac{\partial u}{\partial t} + u\frac{\partial u}{\partial x} + \left(\frac{1}{\rho}\right)\frac{\partial p}{\partial x} = o \qquad . \quad . \quad . \quad . \quad (2)$$

Assuming a polytropic change of state $(n/1)$ we have in addition

$$p = \frac{a^2\rho^n}{n} \text{ where } a^2 \text{ is a positive constant.}$$

By suitable choice of variables, equations (1) and (2) can be reduced to a single differential equation (Darboux). This equation is generally integrable, provided

$$n = 1 + \frac{2}{(2m+1)} \text{ where } m \text{ is a positive integer}$$

and the author gives the solutions corresponding to $n = 3,\ 5/3$ and $7/3$ respectively.

The next problem considered by the author concerns the determination of the

subsequent motion, ρ and u being given as functions of x at time $t=0$. The general solutions are again given for $n=3$, $5/3$ and $7/3$ respectively and applied to the following specific problems.

(1). Propagation of a given density distribution ($t=0$) in a stationary gas with $n=3$.

(2). Reflexion of a density disturbance at a fixed wall ($n=3$).

(3). Formation of stationary waves ($n=3$).

(4). Propagation of a pressure front ($n=5/3$).

(5). Stationary waves between fixed walls for the general case $n=\dfrac{(2m+3)}{(2m+1)}$ where m is a positive integer.

In the second part of the paper, the general integration of the Darboux equation is extended to cover the case of negative integral values of m, special consideration being given to the case $n=-1$ (liquids), for which the problem of stationary waves between fixed walls is worked out in detail. It should be noted that all the solutions obtained by the author are already covered implicitly by Riemann's fundamental treatise on the propagation of finite disturbances published as long ago as 1860. Riemann's solutions, however, are exceedingly complex, since they cover the general case of any arbitrary value for n. By restricting himself to certain values of n, the author is able to solve the resulting Darboux equations in a relatively simple manner without having to use the very cumbersome methods devised by Riemann for the general case. The pertinent factors underlying the problem are thus emphasised and physical interpretation made easier.

The Theory of the Formation of Stationary Atmospheric Waves in the Lee of an Obstacle Exposed to a Horizontal Wind, with Meteorological Applications. (G. Lyre, Z.A.M.M., Vol. 23, No. 1, Feb., 1943, pp. 1-28.) (125 : Germany.)

Stationary atmospheric waves in the lee of a range of mountains are a well-known natural phenomenon and have been utilised extensively by sailplanes. Altitudes up to 8,600 m. were reached in 1933 during experimental flights in the lee of the Riesengebirge in Germany. The presence of these waves is often indicated by one or more high altitude cloud banks, spaced a certain distance apart and extending in a direction parallel to the general run of the mountain range.

These clouds are due to rising air currents reaching the altitude necessary for condensation of the contained moisture, the width of a particular band being determined by the wave length of the stationary wave. Similar stationary waves are also formed on the surface of a liquid flowing in an open channel over an elevation of the bottom extending at right angles to the flow. This case of homogeneous incompressible flow was investigated mathematically by Kelvin as long ago as 1886 and subsequently extended to the case of stratified incompressible liquids by Lamb (1916). Such stratification occurs in the Norwegian fjords, a relatively thin layer of fresh water resting on the denser sea water. Ships proceeding at low speeds on the surface of such a stratified medium experience an abnormally high drag due to internal waves being produced at the surface of separation between the two media. The extension of the problem to the atmosphere presents considerable difficulties since compressibility, as well as stratification must be considered. Assuming 2 dimensional flow and neglecting secondary effects (friction, rotation of earth, heat convection, radiation and moisture), the author considers the problem to a first approximation as equivalent to superimposing a disturbance on a horizontal basic flow of constant intensity u. The undisturbed values of the density, pressure and temperature are functions of the altitude z only and are given by

$$\bar{\rho}=\rho_0\left(1-\frac{n-1}{n}\frac{z}{H}\right)^{\frac{1}{n-1}}$$

$$\bar{p}=p_0\left(1-\frac{n-1}{n}\frac{z}{H}\right)^{\frac{n}{n-1}}$$

$$\bar{T}=T_0\left(1-\frac{n-1}{n}\frac{z}{H}\right)$$

where ρ_0, p_0, T_0 represents ground values, n is the index of the polytropic atmosphere and H is the height of the homogeneous atmosphere $p_0/g\rho_0$. Any polytropic atmosphere of index n has a linear temperature gradient G, defined by the equation

$$\bar{T}=T_0-Gz$$

$$\text{where } G=\left\{\frac{(n-1)}{n}\right\}\cdot\left(\frac{g}{R}\right)$$

In the case of an adiabatic atmosphere, $n=\gamma$ and the stratification is in neutral equilibrium, $n<\gamma$ implies stability, adiabatic atmosphere, $G=.01°\text{C}/_{\text{m}}$.

The disturbance values are assumed to be ρ, p, T, u and w, respectively, w representing the vertical component of the velocity disturbance.

Under steady conditions we then have the following 5 hydrodynamic equations, of which the first two represent the Eulerian equation of motion, No. 3 expresses the condition of continuity, whilst 4 and 5 represent the individual equation of condition and the gas equation respectively.

$$(\bar{u}+u)\frac{\partial u}{\partial x}+w\frac{\partial u}{\partial z}=-\frac{1}{\rho+\rho}\frac{\partial p}{\mathrm{x}} \quad . \quad . \quad . \quad . \quad (1)$$

$$(u+u)\frac{\partial w}{\partial x}+w\frac{\partial w}{\partial z}=-\frac{1}{\rho+\rho}\frac{\partial(p+p)}{\partial z}-g \quad . \quad . \quad . \quad (2)$$

$$(\bar{u}+u)\frac{\partial\rho}{\partial x}+w\frac{\partial(\bar{\rho}+\rho)}{\partial z}+(\rho+\rho)\left(\frac{\partial u}{\partial x}+\frac{\partial w}{\partial z}\right)=o \quad . \quad . \quad . \quad (3)$$

$$(\bar{u}+u)\frac{\partial p}{\partial x}+w\frac{\partial(\bar{\rho}+\rho)}{\partial z}=(c+c)^2\left((w+u)\frac{\partial\rho}{\partial x}+w\frac{\partial(\bar{\rho}+\rho)}{\partial z}\right)=o \quad . \quad . \quad (4)$$

$$\frac{\bar{p}+p}{\bar{\rho}+\rho}=R\,(\bar{T}+T) \quad . \quad . \quad . \quad . \quad (5)$$

Using the well-known method of linearisation, the 5 corresponding equations of condition for the disturbance values ρ, p, T, u and w are next deduced, from which follows the following expression for the vertical disturbance component w (on the assumption that $\frac{\bar{u}^2}{\bar{c}^2}$ can be neglected).

$$\frac{\partial^2 w}{\partial x^2}+\frac{\partial^2 w}{\partial z^2}-\frac{\frac{\gamma}{n}g}{\bar{c}^2}\frac{\partial w}{\partial z}+\frac{\left(\frac{\gamma}{n}-1\right)}{\bar{u}^2\bar{c}^2}g^2w=0 \quad . \quad . \quad . \quad (6)$$

This partial differential equation of the second order is only easily soluble if the coefficients are constants (isothermal atmosphere).

Since, however, $\bar{c}^2$ in the troposphere does not vary more than 10 per cent. from a mean value, the isothermal solution will give a very good approximation if we substitute in the final answer

$$\frac{\gamma}{n}\text{for }\gamma\text{ and }c_0^2\left(1-\frac{n-1}{n}\frac{z}{H}\right)\text{for }\bar{c}_0^2.$$

If finally we assume

$$w=w_1e^{z/2nH},$$

w_1 will satisfy the equation

$$\frac{\partial^2 w_1}{\partial x^2} + \frac{\partial^2 w_1}{\partial z^2} + K^2 w_1 = 0$$

$$\text{where } K = \frac{g}{\bar{u}\bar{c}} \sqrt{\frac{\gamma}{n} - 1}$$

From this we obtain at once the asymptotic wavelength $\lambda = \frac{2\pi}{K}$ and the orbital frequency $\bar{u}K$. Slight recasting leads to

$$\lambda = 2\pi\bar{u} \sqrt{\frac{T}{g(G^* - G)}}$$

where G^* = adiabatic temperature gradient
G = actual temperature gradient
} of the atmosphere

with $T = 248°C$
$\bar{u} = 15 m/_{sec}$
$G = \cdot 006\ °C/_{m}$
$G^* = .01\ °C/_{m}$

we then have $\lambda = 7700m$ which is stated to be in good agreement with certain observations. It should be pointed out that the expression for λ given above does not involve the shape of the ground contour giving rise to the disturbance. It thus represents the asymptotic solution and only applies to waves at a sufficiently large horizontal distance X from the origin of the disturbance. In order to obtain the complete solution, use is made of the boundary condition, necessitating a zero normal component of velocity along the ground profile $z = \zeta_0(x)$. Assuming that the elevation of the obstacle is small compared with λ the boundary condition takes the linearised form

$$w_1\ (x_1 0) = u\zeta'_0\ (x)$$

with the further condition

$$\lim w_1\ (x_1 z) = 0 \text{ for } \sqrt{(x^2 + z^2)} \to \infty$$

The general solution of the differential equation under these conditions involves a Green function which cannot be evaluated unless some further assumptions are made. One way of overcoming the difficulty is to specify that the fundamental solution for $z = o$ must be a monotone function for large values of $-x$ (stationary waves limited to the lee of the obstacle).

Another way of approach is by the Raleigh method of limits. This consists in rendering the solution determinate by introducing frictional forces proportional to the disturbance velocities u and w. The final solution for frictionless flow is then obtained by making μ approach zero indefinitely.

Both methods give identical expressions for $w\ (x_1 z)$, involving, in addition to the gradient of the obstacle, Bessel functions of the 1st and 2nd kind. In the case of a sudden rectangular discontinuity at the origin (plateau of elevation h extending in the $+x$ direction), we obtain

$$w\ (x_1 z) = -2\ \bar{u}\ h\ k\ e^{z/2nH} \left\{ \frac{1}{4} N_1\ (kr) \sin \phi + \left(\frac{1}{\pi}\right) \sum_{\nu=1}^{\nu=\infty} \left[\frac{2\nu}{\{(2\nu)^2 - 1\}} \right] J_{2\nu}\ (kr) \sin 2\nu\phi \right\} \quad . \quad . \quad . \quad (7)$$

where $x = r \cos \phi$
$z = r \sin \phi$
N_1 = Bessel function of 2nd kind, first order
$J_2\nu$ = Bessel function of 1st kind, order 2ν.

The solution is shown graphically in non-dimensional form, the value $\frac{\lambda w}{\bar{u}H}$ being plotted for a series of altitudes $\frac{2\pi z}{\lambda}$ and for distances $\pm \frac{2\pi x}{\lambda}$ from the origin of

the disturbance. For any constant z, the disturbance is damped out at $\pm\infty$, being periodic on the lee and aperiodic on the windward side of the obstacle. The aperiodic solution changes sign as the altitude z is increased by $\lambda/2$, so that alternate layers are characterised by up and down winds respectively. The values are, however, small, except in the neighbourhood of the obstacle, where an upwind of the order $\frac{\lambda w}{\bar{u}H} = \sim 4$ is indicated at an altitude $\frac{\lambda}{8}$. For very small values of r (immediate neighbourhood of obstacle) expression (7) simplifies to

$$w = \sim \left(\frac{\bar{u}h}{\pi}\right)\left(\frac{\sin\phi}{r}\right) = \left(\frac{\bar{u}h}{\pi}\right)\left(\frac{z}{(x^2+z^2)}\right)$$

contours of equal upwind are thus given by

$$x^2 + \left(z - \frac{\bar{u}h}{2\pi w}\right)^2 = \left(\frac{\bar{u}h}{2\pi w}\right)^2$$

which, according to the author, is in excellent agreement with experience. The upwind in the periodic solution on the lee reach a value of the same order at an altitude of $z \sim \lambda$ in the first wave. At lower or greater altitudes the upwind is less. Thus at $z = \lambda/8$, for which a pronounced upwind exists on the windward side, the lee side is practically free from any upwind.

The solution for the semi-infinite plateau can obviously be adapted to cover the case of a plateau of finite width b and height h.

It appears that the more distant lee waves are reinforced if $b = \frac{\lambda}{2}$ but reduced if $b = \lambda$. This is shown more clearly by actual streamline diagrams for two plateaus of rectangular profile and width $\frac{\lambda}{2}$ and λ respectively, as well as for the case of a disturbance concentrated at the origin. In the latter case the variation of the pressure on the ground with distance from the origin can be calculated relatively simply. A depression of several milibars under the first upwind region with smaller depressions under subsequent fields are easily produced. These regions of low pressure are separated by others where the pressure is practically atmospheric. Now, in the practical case with friction, $\bar{u}$ near the ground is much lower than at higher altitudes. This will not affect the theoretical pressure distribution (calculated for constant $\bar{u}$) appreciably, and the pressure troughs will produce an acceleration of the air in the opposite direction to the general motion. Should the air be brought to rest, it will have to deflect upwards (continuity). It now enters regions of higher $\bar{u}$ and will follow the basic flow until the next high pressure region is reached. A series of vortices (known as Rotors in Meteorology) are thus produced near the ground on the lee of the obstacle. Several theories for the formation of such Rotors have been proposed in the past, a surface of separation being assumed which subsequently rolls up. From the author's investigation it appears that the Rotors are a necessary accompaniment of the lee wave and no further theory for their existence is needed.

New calculation of specific heat, enthalpy and entropy of Air. (E. Justi, Ann. d. Physik, Vol. 29 (1937), pp. 302-305). (125/3 Germany.)

The air is assumed to have the following per cent. composition (by volume).

N_2	O_2	CO_2	H_2O	Rare gases
78.03	20.99	.03	.01	.935

The gas constant $R = 1.986$ cal/Mol.°C. The thermal data of the constituent gases are based on spectroscopic data and the values for air thus calculated apply to the ideal state ($p = 0$). Values for C_p and $\bar{C}_p$ (*i.e.*, absolute specific heat and mean specific heat over the range of $0°$ to $t°C$) as well as entropy S_p are given over the temperature range—100°C to 2,000°C. The specific heat values are

expressed both in terms of cal/Mol. °C and cal/gm. °C, the conversion being based on an ideal molecular weight of 28.98.

The correction of the specific heat values to real gas conditions (*i.e.*, from zero to finite pressures) is obtained from the equation

$$\left(\frac{\partial\, Cp}{\partial\, p}\right) = -T\left(\frac{\partial^2 V}{\partial\, T^2}\right)p$$

where

$$V = RT\left(1 + \frac{9\, p\, T_K}{128\, p_K\, T}\right)\left(1 - 6\frac{T_K^2}{T}\right)$$

p_K = critical pressure for air
= 132.°C_A
pK = critical pressure for air
= 37.2 atmospheres

The above equation of state (Berthelot) is satisfactory up to 10 atmospheres.

The variation of C_p calculated by the above equation amounts to 0.15 cal/Mol. °C at O°C for the pressure rise 0 to 1 atmosphere and less at higher temperatures.

As the C_p values for air in the ideal state vary from about 7 to 9 cal/Mol.C° over the temperature range 0 to 200°C, the pressure effect for 1 atmosphere can be safely neglected.

The same applies to the pressure correction for enthalpy and entropy.

The table calculated for the ideal state thus also applies to the real gas at pressures below 10 atmospheres provided there is no appreciable dissociation. For this reason the upper temperature limit has been fixed at 2,000°C.

The following are representative values (cal/Mol.°C) for Cp and entropy Sp.

°C	C_p	C_p	S_p
0	6.945	6.945	0
100	6.995	6.965	2.17
500	7.565	7.195	7.42
1,000	8.205	7.55	11.36
1,500	8.54	7.84	14.14
2,000	8.76	8.07	16.22

As is well known, direct calorimetric determination of the specific heat of gases at elevated temperatures is very difficult, mainly due to uncertainties of the correction for heat loss. It is interesting to note, however, that the most trustworthy direct determination of C_p or N_2 and O_2 are in good agreement with those based on spectroscopic data. The values for air given in the table can therefore be used with every confidence.

Some Simplified formulae applied to the Gas Turbine. (M. Roy, Comp. Rend., Vol. 214, No. 7, 16/2/42, pp. 298-301.) (125/4 France.)

Consider a constant pressure gas cycle with a starting temperature T_o.

Let $\gamma\ T_o$ = temperature rise associated with adiabatic compression to the upper pressure.

$\beta\ T_c$ = temperature rise due to combustion after compression and heat transfer from regenerator.

$\rho_c'c$ = internal efficiency of compressor.

ρc = effective " " "

ρ'_d = internal efficiency of turbine.

ρ^d = effective " " "

T_d = gas temperature before expansion.

T_1 = limiting blade temperature.

$$= (1+\lambda)\ T_o$$

$$= \left[1 - \frac{\tau\gamma}{(1+\gamma)}\right] T_d$$

where τ is a coefficient depending on design of turbine and conditions of operation. $\tau=1$ signifies that the full adiabatic temperature rise is effective at the blading. For a single stage impulse wheel working under optimum conditions, $\tau \cong .8$.

Also let m = air/fuel ratio (weight basis).

α = excess air coefficient.

L = calorific value of fuel.

η_b = combustion efficiency.

η_r = efficiency of regenerator.

η = overall efficiency of power plant.

we have $\eta_b L = m\ (1+\alpha)\ C_p\ \beta\ T_o$.

For paraffin fuel we have approximately

$$\alpha = \frac{10}{\beta} = 1$$

From the above, the author deduces

$$\beta = \rho' c\ (1+\lambda)\ [(1+\gamma)\ (1-\eta_r) + \gamma\eta_r\rho' d\,] - \frac{\{\ (1-\eta_r)\ (\rho' c+\gamma)\ [1+(1-\tau)\gamma]\ \}}{\{\ \rho' c\ [1+(1-\tau)\gamma]\ \}}$$

$$\eta = \eta_b \left[\frac{(1+\lambda)\ \rho c\ \rho d}{\{\ 1+(1-\tau)\ \gamma\ \}} - 1 \right] \left(\frac{\gamma}{\rho c\ \beta} \right)$$

For a perfect engine utilising this cycle and assuming $T=1$ we thus have

$$\eta = \frac{\lambda}{(1+\lambda)}$$

The efficiency in this case thus depends only on the relative temperature limit assumed for the blading $T_1/T_o = (1+\lambda)$ and does not involve the compression ratio or γ.

The compression ratio, however, enters into the expression for the excess air coefficient, which, for paraffin fuel can be expressed very approximately by

$$\alpha = \frac{10}{\gamma\ (1+\lambda)} - 1$$

If, however, our perfect engine operates without a regenerator ($\eta r = 0$), the ideal overall efficiency becomes

$$\eta = \frac{\gamma}{(1+\gamma)}$$

It will be noted that this expression depends on the compression ratio only and is independant of the relative blade temperature $(1+\lambda)$.

For a practical case we can assume

$\eta_b = .98$	$\rho'_c = .82$
$\gamma = .48$	$\rho_c = .78$
$T = 773^\circ\ C_A$	$\rho'_d = .85$
$\tau = .8$	$\rho_d = .81$
$\eta r = .5$	

With $T_o = 288^\circ\ C_A$ we thus obtain

$$\eta = .216\ ;\quad \alpha = 5.62$$

For $T_o = 323^\circ\ C_A$, these values become

$$\eta = .180\ ;\quad \alpha = 6.93$$

A rise in the atmospheric temperature thus causes a serious drop in efficiency and power (17 per cent. and 38 per cent. respectively). On the other hand, a power plant of this type requires no external cooling (either water or air), which represents a distinct advantage in many cases.

Feeder Air Services. (E. Ausstutz, Inter Avia., Nos. 920-21, 20/5/44, pp. 1-4.) (125/5 Switzerland.)

Large Air Ports are of necessity in close proximity to the world's centres of commerce. A country can ultimately engage in air transportation only on a scale commensurable with its national economy and the amount of paying cargo available. In the case of Switzerland, extremely rapid communications with the international trunk air services are of the utmost importance for handling high quality goods for export. This is best provided by special feeder aircraft. The de Havilland twin engined " Dragon " constituted the first attempt for such a design. It is now, however, generally agreed that small twin engined aircraft are unsatisfactory. They are either uneconomical or become definitely unsafe in the case of one engine failing. A much better solution consists in single engined aircraft of a gross weight below 10,000 lb., provided the stalling speed is below 55 m.p.h. and the landing run less than 500 yards after clearing a 50ft. obstacle. The Swiss Aeronautical Technical Association has carefully studied the problem and is developing a suitable type (SB-5), fitted with a 1,200 h.p. engine. Under cruising conditions, only a fraction of this power will be required, leaving a substantial power margin for take-off and climb. This should make for reliability and the very ample seating accommodation (9 passengers) should dispel the uneasy feelings which some passengers experience in the case of the night cabins of the conventional feeder. Dimensions and shape of the entire aircraft are substantial and this also tends to give the passenger more confidence than the flimsier twin engine aircraft of equal gross weight. As a preliminary to this type, a smaller version (SB-2) of 4,850 lb., gross weight has been constructed and is now undergoing flying trials. This machine is fitted with a Wasp Junior engine (440 h.p. take-off, 300 h.p. cruising) and has been designed specially to operate from small airfields situated high above sea level (2 pilots and 3 passengers). The pilots' cockpit has very good vision and a special aerofoil section is employed to give good climbing and slow flight characteristics (automatic leading edge slots along entire span, large external flaps and ailerons, pronounced forward sweep of wing).

The flaps and ailerons are deflected jointly to optimum climbing position. Any further deflection of the flaps causes only a slight follow-up of the ailerons so that full lateral control is maintained. Landings are carried out with a steep approach, ensuring a short run similar to that of the Fieseler Storch. A tricycle undercarriage (non-retractable) is fitted, the nose wheel being combined with the rudder control at will so as to improve ground handling. In order to deal with the landing shock associated with the steep approach utilised, the main wheel struts have an exceptionally long travel (22 in.) against a specially designed combined spring and oleo shock absorber.

Fundamental Problems of the Development of Air Transportation. (C. Pirath, Inter Avia, Nos. 918-19, 11/5/44, pp. 1-5.) (125/6 Germany.)

Compared with other means of transport, the air offers the advantages of speed but the disadvantage of greater cost. A close study of the trend of operating costs per ton mile of efficient air service during the 15 years preceding the outbreak of war shows that such costs became stabilised over the last 5-year period and no appreciable further reduction is to be expected in the future. The price differential between air and other forms of transport will then fundamentally remain and air traffic will then only be remunerative over long routes and for certain kinds of goods.

The interests of the community are then best served by the establishment of national traffic combines in which the better paying routes help to support the less economic. Similar trends have already been observed in road and sea transport.

It is not expected that the increase in air traffic will be phenomenal after the war. In view of the relative small volume of passengers and goods to be trans-

ported, greater advantages will accrue to the community by an increase in the frequency of schedules rather than by an excessive and sudden augmentation of the gross weight of civil aircraft beyond present day limits (40-50 tons).

Technical developments during the war have now made it possible to operate civil aircraft over practically the whole of the earth surface. In some respects we seem to be back in the pioneering age of civil aviation. Remembering past mistakes, our future planning must never lose sight of the fact that transport, whether by sea, land or air, must form an organic whole and that a sound economic basis can only be achieved by proper co-ordination.

Landing Runs of Aircraft with or without brakes in the presence of a headwind. (H. Winter and W. Meyer, L.F.F., Vol. 21, No. 1, 28/2/44, pp. 11-16.) (125/7 Germany.)

From the equilibrium of the horizontal and vertical forces during the landing run, the following equation is easily deduced:

$$\left(\frac{G}{g}\right)\left(\frac{d\,v^*}{dt}\right)+w+\mu_R\,(G-A_F-A_H)-(\mu_R-\mu_{sp})\;P_{sp}=0$$

where G = weight of aircraft.
v^* = relative velocity with respect to ground.
w = air resistance.
A_F = wing lift.
A_H = tail lift.
$\mu_R=\mu_r+\mu_b$.
μ_r = coefficient of rolling friction of landing wheel.
μ_b = coefficient of friction of brakes at wheel circumference.
μ_{sp} = coefficient of friction at tail wheel.

The lift of the tail surfaces can generally be neglected. Also, when using brakes to the limit, $P_{sp}=0$. We then have

$$\frac{G}{g}\frac{dv^*}{dt}+w+\mu_R\,(G-A_H)=0.$$

The same equation will hold for no brakes, if μ_R is slightly increased.

Integrating this equation, the author obtains

$$\mu_R s^*=\left(\frac{1}{g}\right)v_L^{\,2}\left(\frac{1}{C}\right)\left[\frac{1}{2}\log\left\{\frac{1-\left(\frac{w^2}{v_L^{\,2}}\right)C}{(1-C)}\right\}\right.$$
$$\left.+\left(\frac{w}{v_L}\right)\sqrt{C}\left(\operatorname{Artan}\left\{\frac{w}{v_L}\right\}\sqrt{C}-\operatorname{Artan}\sqrt{C}\right)\right. \qquad (1)$$

where v_L = relative air speed when touching down.
w = wind velocity.
$C=\dfrac{(\mu_r c_{ar}-c_{wr})}{\mu_R c_{aL}}$
c_{ar} = lift coefficient during run out.
c_{wr} = drag coefficient ,, ,,
c_{aL} = lift coefficient at touch down.
Artan = hyperbolic area function.

μ_R without brakes, varies from .01 to .06, depending on nature of ground.

With wheels locked, μ_R varies from .5 to 1.35. To prevent nosing over, however, μ_R must not exceed tan α where α = angle between a line joining the CG position to the point of contact and the vertical. The limits μ_R to values between .4 and .6.

With these values, the factor C entering in the landing run expression has been calculated for a series of aircraft.

Type	$G/_F$ kg/m²	C Without brakes Concrete	Grass	With brakes
Ju. 52	95	− 7.8	− .6	.65 − .73
Ju. 87	140	− 7.6	− .5	.66 − .73
Ju. 88	190	− 9.4	− .9	.59 − .68
Ju. 90	170	− 10.3	− 1.0	.68 − .75

Equation (1) was then evaluated with v_L and w as independent variables and C as parameter.

The results are given both in tabular and graphical form and are especially useful if an observed landing run with a known head wind is to be reduced to zero wind conditions.

For Ju. 52 ($v_L = 26.4 m/_{sec}$) the minimum landing run of 113 m. (in still air with maximum rearward C.9 position and max. safe braking) is reduced by about 6 m. for each $1 m/_{sec}$ increase in the head wind speed over the range w = 0 to 10 $m./_{sec}$.

Sailing Flight and Aeronautical Research. (W. Georgii, Luftwissen, Vol. II, No. 2, Feb., 1944, pp. 33-37.) (125/8 Germany.)

The development of sailing flight has undergone three well defined periods since its initiation in 1920. During the first seven years, the flights were limited to the upwind regions associated with relatively low ranges of hills under suitable meteorological conditions. The available energy is rather small and the gains in altitude were generally under 350 m., the aircraft being launched by catapult into the rising current. Subsequent development over the period 1927-1938 was given a tremendous impetus by the utilisation of upcurrents associated with thermal instability of the upper atmosphere. Rising air currents with a vertical velocity exceeding 20 m. per second are found in storm fronts at altitudes between 2,000 and 8,000 m., whilst at the base of ordinary cumulus clouds upwinds of the order of 5-10 $m/_{sec}$ are often found. The utilisation of these currents necessitates releasing the sailplane at an altitude of one or two thousand meters, and this was achieved by the towed start, which later led to the towed glider train.

During the Rhone competition in 1938, altitudes of the order of 8,000 m. were easily reached by making skilful use of these thermic currents and long distance travel (as distinct from air endurance) at last became possible.

We now come to the latest development stage, which appears to be the most promising of all. Whilst during the first period, operations of the sail plane was only possible on the windward side and in close proximity to chains of suitable hills, thermic flights of long duration necessitates rather unstable weather conditions.

Now rising air currents are also known to exist on the lee of high mountain ranges. The peculiarity of these so called lee waves is the fact that they reach their maximum intensity at considerable altitudes (~15,000m.). Similar waves are formed above cold fronts breaking into the lower troposphere. The presence of these waves opens up interesting possibilities of sailing flights at these high altitudes since the waves extend over a considerable horizontal range with rising currents of the order of 10 $m./_{sec}$ for a horizontal ground wind of 10-20 $m./_{sec}$. Altitudes of the order of 11,000 m. have already been reached by such stratosphere gliders operating in the lee of the alps (Hohen Tauren) and since cold front irruptions are not uncommon, long distance travel in the lower stratosphere should be feasible without necessitating the rather abnormal weather conditions associated with thermic flight at lower altitudes.

The development in the range of sailing flight operations is thus largely a question of meteorological research. In order to make the fullest use of any existing up currents, the aerodynamic efficiency of the glider must, however, be as high as possible. The importance of a smooth exterior, especially of the wing

surface was thus recognised very early and the effect of the wing root-fuselage fairing on performance received close study. Such problems cannot be satisfactorily tackled by wind tunnel experiments alone and the sailplane offers a cheap method for carrying out aerodynamic research on these and kindred problems such as diving brakes, wind factor due to gusts, etc. Many of the results are of direct help to the designer of power driven aircraft and it is now generally recognised that before the prototype of any new power driven design is constructed, the performance of a sail plane model, with pilot, should be used to supplement predictions based on wind tunnel and freeflight model tests.

The importance of sailing flights apart from sport and research has often been questioned. It is possible that the latest development of stratosphere sailing may have commercial application. At any rate the development of the modern tug and glider train is of great commercial interest and is a direct outcome of the assisted take-off glider experiments first carried out in 1927.

The Damping Capacity of Engineering Materials. (W. H. Hatfield, G. Stanfield and L. Rotherham, Transactions N.E. Coast Inst. of Engineer and Shipbuilders, Vol. 58, 1941-42, pp. 273-332) (extensive bibliography). (125/9 G.B.)

The experiments were carried out on specimen 9½ in. long with ends ½ in. square, a 2 in. gauge length of $\frac{5}{16}$ in. diameter being provided over the central portion. The top end of the specimen is clamped rigidly, whilst the bottom is fitted with a cross bar by means of which an initial twist can be given to the system prior to release. The amount of this twist is adjusted to produce a certain maximum surface stress S on the cylindrical surface of the specimen, the cross bar being held in the required position by means of a powerful electromagnet. On opening the circuit the specimen undergoes torsional vibrations of gradually decreasing amplitude which are recorded optically.

The specific damping capacity R is defined as the ratio of the loss of energy per cycle to the energy at the start of the cycle, *i.e.*,

$$R = \frac{(a^2 - b^2)}{a^2}$$

where $a + b$ are the amplitudes of successive swings.

Tests were carried out on 66 specimens of various materials, including steel, cast iron, light alloys and bakelite, the damping capacity R being tabulated for a series of maximum stresses ranging from 2 to 5 tons per sq. in. for steel and heavy alloys to a few hundred pounds in the case of plastic material.

By surrounding the specimen with an electrically heated tube furnace, the variation in damping with temperature of the material could be investigated.

Summary of Results.

1. *Normalised Carbon Steels.*

The damping capacity R at 20°C and $S = 2$ tons/sq. in. ranges from 1 to 2 per cent. depending on composition. Increasing S to 5 tons/sq. in. roughly doubles the damping. In the case of mild steel, R at 500°C is 3 to 6 times the room temperature value. With higher carbon content, the same temperature rise produces either a small positive or negative effect.

2. *Alloy Steels.*

R at 20°C ($S = 2$) is less than .5 per cent.
R at 500°C ($S = 2$) 1 to 3 per cent.
Increasing S to 5 tons/sq. in. raises R 1½ to 2 times.

3. *Corrosion and Heat Resisting Steels.*

Ferritic stainless irons and steel have large damping capacity ranging from 2 to 8 per cent., whilst R for the austenitic steels is less than 5 per cent. The

damping of the latter is also affected to a less extent by temperature or stress than in the case of ferritic base materials.

4. *Cast Iron.*

This material has a very high damping factor ranging from 6 to 20 per cent. depending on composition and stress range.

5. *Nickel.*

R diminishes from 10 per cent. to .6 per cent. as the temperature is raised to 500°C.

Increase in S causes R to diminish.

6. *Cobalt.*

R increases from .7 to 10 per cent. as the temperature is raised to 470°—increase in S causes a marked increase in R.

7. *Light Alloys (room temperature).*

R is of the order of .5 per cent. to 1 per cent. over the stress range 1,000 to 3,500 lb./sq.in.

In the case of Al base alloys, R is affected very little by the stress S. For magnesium base alloys there is an appreciable increase in R for the higher stress values.

8. *Bakelite (room temperature).*

R varies from 20 to 25 per cent. depending on stress ranges and composition of plastic.

9. *Damping coefficient of Miscellaneous Materials (room temperature).*

Lead	20-30 per cent.
Glass	2 ,, ,,
Copper Alloys	.5 ,, ,,
Ivorine	30-50 ,, ,,

It is pointed out that the variation of the damping coefficient with temperature and stress is evidently connected with changes in the internal structure of the material and may thus serve as a useful tool for general material research.

Quartz Crystals (Types, modes of vibration and methods of manufacture). (M. A. A. Druesne, Communications, Vol. 23, No. 9, Sept., 1943, pp. 46-50, 109-111.) (125/10 U.S.A.)

Quartz is a hexagonal crystal with 3 orthogonal axes—optical, mechanical and electrical. The electrical characteristics of an oscillator cut from such a crystal depend entirely on the orientation of these axes with respect to the faces of the oscillator. There are five principal modes of vibrator (thickness, thickness shear, face shear, longitudinal, flexural) and the main difficulty is to avoid the occurrence of coupled oscillations and frequency jumps, whilst at the same time ensuring maximum electrical response and minimum change of frequency with temperature. Unfortunately, the relative position of the axes differs for these three requirements and the design of the oscillator is thus a matter of compromise. Sufficient experience has, however, been gained to specify a series of cuts covering the frequency range 25 kc. to 12 megacycles, with a minimum drift in frequency of one part per million per degree centrigrade. If complete crystals are available, the position of the axes with respect to the faces is known and the cutting becomes a relatively simple matter. Most of the present day supply consists, however, of imperfect crystals and in many cases neither apexes nor faces can be identified. The Western Electric Company were the first to develop an X-ray method for determining the position of the axes in such imperfect crystals and machinery is now available which gives the required information in a few minutes.

Special cutting machinery has also been evolved with 3 degrees of freedom on the orientation table and angular verniers reading to 1 minute of arc. In this

way full advantage can be taken of the accuracy of the X-Ray method. It is interesting to note that the final lapping is done on a number of crystals simultaneously, the frequency of the blank being continuously checked against a standard during the grinding operation.

As a result of the developments, the bottleneck in production which existed early in 1942 has now been completely overcome and crystal oscillators are now manufactured by the million.

The Stressing of thin circular plates undergoing large deflections under a uniform load. (K. Federhofer, L.F.F., Vol. 21, No. 1, 28/2/44, pp. 1-10.) (125/11 Germany.)

The accurate determination of the deflection and stress distribution of thin flat plates of arbitrary contour when subjected to a pressure load becomes very complicated as soon as the deflections are comparable with the thickness of the plate. The general solution involves the integration of a non-linear partial differential equations of the 4th order and has so far only been solved for the special case of a circular plate, clamped at the edge and subjected to a uniform load. Even in this case, however, the series expressions for stress and deflection satisfying the equations are cumbersome and not suitable for practical calculations. Since circular plates under a pressure load form the basis of many modern control instruments and their behaviour is correspondingly important, the author has obtained an approximate solution of the problem, the stress and deflection being tabulated in terms of the plate parameter

$$\nu = \frac{\rho_o a^4}{Eh^4}$$

where ρ_o = pressure per unit area.

a = radius of plate.
h = thickness.
E = Young's modulus.

As is well known, if the maximum deflection at the centre w_o is very small compared with h, we have

$$\frac{w_o}{h} = \left(\frac{3}{16}\right)(1-\mu^2)\nu$$

when μ = Poisson's Ratio = $\frac{1}{4}$.

The author's table, given below, covers the range $\frac{w_o}{h}$ .40 to 10.91, the corresponding ν values varying from 2.4 to 4128. The table also gives the resulting maximum stress (σ_{max}) at the outer edge of the material in the non-dimensional form $S_{max} = \left(\frac{\sigma_{max}}{E}\right)\left(\frac{a}{h}\right)^2$

ν	w_o/h	S_{max}
2.4	.40	1.73
9.2	1.04	6.08
18.9	1.49	10.6
52.6	2.28	22.2
150	3.39	48
502	5.23	105
4,128	10.91	435

A comparison with the accurate series solution shows that for $\nu = 502$, the error in w_o/h is less than 2 per cent. (tabular value too high), whilst the error in S_{max} is of the order of 5 per cent. (tabular value too low).

At smaller values of ν both errors will be considerably less. The author has also considered the case of the circular membrane which is the limiting case of the

plate when the thickness h becomes so small that the bending stiffness $\frac{Eh^3}{12(1-\mu^2)}$ can be neglected. In this case the material is subjected to radial and tangential forces only.

The following table gives the results obtained by the author's approximate method, together with the error compared with the accurate series solution.

The circular membrane is of radius r_a, rigidly held at its periphery and subjected to a uniform pressure ρ per unit area.

The cases considered cover both the complete membrane and when fitted with a central hole (inner edge unsupported).

Let r_1 = inner radius.

r_a = outer radius.

$\rho_i = \frac{r_1}{r_a}$ (= o for unperforated membrane).

$\beta = \frac{pr_a}{Eh}$

W_i = deflection of inner edge (i.e., deflection at centre for unperforated case).

$= r_a \sqrt[3]{\beta w_i}$

$w_i = \left(\frac{1}{2\gamma c}\right) \log \frac{(1-\gamma\rho i^2)}{(1-\gamma)}$

T_{1a} = radial stress at outer edge.

$= Eh \sqrt[3]{\beta^2}\, t_{1a}$

T_{2a} = tangential stress at outer edge.

$= Eh \sqrt[3]{\beta^2}\, t_{2a}$.

T_{2i} = radial stress at inner edge.

$= Eh \sqrt[3]{\beta^2}\, t_{1i}$.

T_{1i} = tangential stress at inner edge.

$= Eh \sqrt[3]{\beta^2}\, t_{2i}$.

Note: $\mu = .3$ for the figures in the table.

$\rho_i = \frac{r_1}{r_a}$	o	.1	.5	.9
w_i	.649	.648	.591	.267
	(−2 %)	(− .7%)	(− .8%)	(−1 %)
t_{1a}	.330	.323	.192	.024
	(+ .6%)	(−1.3%)	(−1.5%)	(−3.8%)
t_{2a}	.099	.097	.058	.007
	(−1.8%)	(− .6%)	(−3.6%)	(−3.8%)
t_{1i}	.446	o	o	o
	(+3.4%)			
t_{2i}	.446	.886	.776	.479
	(+3.4%)	(+3.4%)	(+5.7%)	(+11 %)
γ	.259	.265	.406	.822
C	.891	.889	.863	1.433

The figures in brackets indicate the error of the approximate solution. It will be noted that they only become appreciable when the hole becomes very large compared with the diameter, *i.e.*, $r_1/r_a \sim .9$. The table also shows that for small central holes (*i.e.*, $r_1/r_a \sim .1$, the tangential stress at the hole approximates to twice the corresponding stress existing at the centre of the unperforated membrane.

The author finally considers the important practical case when the perforated membrane is fitted with a rigid central disk to which the inner edge of the membrane is attached, the load now consists of a single force P acting on the central disk, from which it is transmitted to the inner edge of the membrane.

With the new parameter $\theta = \frac{P}{\pi r_a E h^2}$ and using same notation as before, we have

$$\rho_i = \frac{r_i}{r_a}$$
$$W_i = r_a \sqrt[3]{\theta} w_i$$
$$T_{1,a} = Eh \sqrt[3]{\delta} t_{1,a}$$
$$T_{1i} = Eh \sqrt[3]{\delta}\, t_{1,i}$$
$$T_2 = \mu T_1 \text{ where } \mu = .3 \text{ as in previous table.}$$

$\rho = \frac{r_i}{r_a}$	.1	.3	.5	.7	.9
w_i	1.141 (− .2%)	.802 (0)	.538 (− .4%)	.308 (− .3%)	.099 (+ .2%)
t_{1a}	.501 (−1.2%)	.507 (− .7%)	.511 (+ .04%)	.513 (− .08%)	.515 (0)
t_{1i}	2.512 (+2.5%)	1.178 (+1.3%)	.829 (+ .16%)	.659 (+ .03%)	.555 (0)

The errors compared with the accurate series solution are given in brackets as before and are remarkably small.

Contact Extensometer for measuring working stresses. (A. Thurn and O. Svenson, Z.V.D.I., Vol 88, Nos. 11-12, 18/3/44, pp. 153-159.) (125/12 Germany.)

Electric strain gauges with a base length of 10 to 20 mm. have reached a high state of perfection during recent years, both as regards accuracy and consistency. The complete installation is, however, complicated and the need for an electric connection between the strain gauge proper and the rest of the rather bulky apparatus is not always easy to meet. This applies especially if the part to which the strain gauge is attached is undergoing rapid motion (rotation). Cases may obviously arise where the provision of such a cable connection becomes impossible and the method will fail, since the recording year itself cannot be attached to the rotary part. Now in many design problems a knowledge of the maximum and minimum working stresses to which the part is subjected will suffice and the accurate variation of intermediate values with time is not required. For this purpose, the authors developed a mechanical type of strain gauge with a base length of 20 mm. Any change in this base length causes a corresponding change in an air gap between two levers forming an integral part of the instrument frame (no pivots). One of these levers is unaffected by any extension of the base, but its position in space is controlled by a very accurate micrometer screw. The other lever follows the motion of the movable base point with a slight magnification ($\sim 2:1$), an extension of the base line producing a closing of the gap. The gauge is attached to the part under investigation in the usual manner either by means of a spring clamp or welding of the base points. A zero reading of the gap is then taken by moving the adjustable lever till the gap is closed.

For this purpose the adjustable side of the gap is fitted with an insulated central electrode, whilst the other side has a spring loaded centre piece which is similarly electrically insulated.

Closing of the gap is judged by the passage of an electric current and is recorded either by a flash lamp, telephone or other suitable devices. Having thus determined the zero position corresponding to the unstrained specimen, the latter is subjected to the stress cycle requiring examination and the gap opened till a current just fails to be established. This position corresponds to the maximum strain experienced by the gauge. The minimum strain is similarly determined by closing the gap till a steady current is passed through the contacts. The micrometer screw enables these distances from the zero position to be recorded with an accuracy of $\pm$ .4 μ. For a base length of 20 mm., an extension of this

amount corresponds to a stress of about .4 kg $_{mm}^2$ and .15 kg$/_{mm}^2$ for steel and light alloys respectively, monoaxial stress being assumed. These figures therefore determine the limits of accuracy of the gauge.

It must be remembered that the electric current in this instrument only registers "on" or "off" positions and the absolute value is of no importance. The circuit is therefore incomparably simpler than for the standard electrical resistance gauge, where the absolute value of the current is used for measuring purposes. In the case of a rotating body, all slip rings can be avoided by using a flash lamp indicator and dry cell, which are attached to the body and rotate with it. Thus during bending fatigue tests, the shaft fibres undergo periodic changes as the shaft rotates, the outer layers in the topmost position at any instance undergoing maximum extension. If the gauge, together with flash lamp and battery, is attached to the rotating shaft, the lamp will just light up in the topmost position if the gap setting corresponds to the maximum stress. If the gap setting is slightly smaller, the lamp traces out a circular arc, the extension of which corresponds to the period during which the shaft stress exceeds the setting. A number of such gauges should prove useful for checking up the stress distribution in any structure subjected to variable load. An ordinary counter mechanism will record the number of times the stress in any part has exceeded a definite value over a period.

The quality of resistance flash welds of high tensile steels. (F. Bollenrath and H. Cornelius, L.F.F., Vol. 21, No. 1, 28/2/44, pp. 17-28.) (125/15 Germany.)

The experiments were carried out mainly with two Chromium-Vanadium alloy steels, one of which contained also molybdenum. The per cent. compositions are given below:—

	C.	Si.	Mn.	P.	S.	Cr.	Mo.	V.
Steel A ...	.27	.25	.68	.018	.01	2.46	.21	.19
Steel B ...	.30	.25	.74	.018	.01	2.38	—	.27

The material was available in plates, 12, 20 and 25 mm. thick and 120 mm. wide, the flash but welds being carried out on a A.E.G. resistance welding machine employing a specific upset pressure of ~5 kg$/_{mm}^2$ over a travel of 4-7 mm. The material burned away corresponded to about 12-16 mm., the total welding time 30 seconds. After welding, the joint is cooled in air and subsequently heat treated, three different processes being employed.

I. (1) Normalising at 870°C for one hour followed by air cooling.
(2) Reheating to 870°C for one hour followed by oil quenching.
(3) Tempering to 450, 550 or 650°C for one hour followed by oil quenching.

II. (1) Normalising at 870°C for one hour followed by air cooling.
(2) Reheating to 870°C for one hour followed by oil quenching.
(3) Tempering to 550°C for one hour followed by air cooling.

III. (1) Heating to 870°C for one hour followed by oil quenching.
(2) Tempering to 870°C for one hour followed by air cooling.

The tests covered the usual mechanical qualities such as tensile, notch impact, fatigue (alternating about a mean tensile of 10 kg$/_{mm}^2$) and bending.

The principal conclusion drawn by the authors is that for the particular steels examined the tensile strength of the weld is at least as good as that of the parent material (~ 150 kg$/_{mm2}$). The fatigue limit of the weld (10^7 reversals) is however appreciably lower, 10 ± 26 kg$/_{mm}^2$ against 10 ± 32 kg$/_{mm}^2$ for the parent material. (The fatigue results showed a considerable scatter and the figures quoted refer to the lowest values reached in each case).

The notch impact strength is roughly halved (2 m. kg$/_{mm}^2$) against an optimum period as well as the final oil quenching omitted.

These results are moreover very little affected by the type of heat treatment employed so that the simplified method III can be adopted and the normalising period as well as this final oil quenching omitted.

These results apply only if the welding process is carried out properly and the setting of the machine should be frequently checked and a rigorous method of weld inspection adopted.

One source of weakness is the formation of small holes and cracks in a so-called fault-zone at some distance from the weld proper. This zone apparently arises from the crystal grains locking during the upset process and preventing an even distribution of the semi-fluid metal. Cavities are then formed during the subsequent cooling (contraction of fluid metal).

The difficulty can generally be overcome by increasing the upset force of the welding machine. This is however not very economical and further experiments on controlling the shape and size of the crystal grains in this zone are in hand.

The phenomenon is obviously a complicated function of the nature of the steel and the best distribution along the weld.

It is interesting to note that for the particular kinds of steels employed in these tests, this fault zone occurred only very rarely.

The theory of auto-compensating D.C. amplifiers utilising direct mechanical control. (L. Merz, Archiv. fur Elektrotechnik, Vol. 31 (1937), No. 1, pp. 1-23.) (125/14 Germany.)

Moving coil mirror galvanometers are now available by means of which all D.C. currents likely to be met with in the laboratory can be measured directly to a high degree of accuracy. Such sensitive instruments are, however, necessarily difficult to handle and many attempts have been made to design D.C. amplifiers so that more robust measuring instruments of the pointer type could be employed. Earlier solutions suffered from the drawback that, the amplification varied over different parts of the scale and was, moreover, not consistent, nor accurately predictable. Essentially any device of this type must give an electrical magnification of small pointer readings and the possibility of employing a bolometer relay for this purpose received early attention. Thus, in the device proposed by Snell (1932), the primary *EMF* e_x is led to a galvanometer fitted with a vane pointer, the motion of which alters the cooling air flow over the coils of a previously balanced bridge. This leads to an out of balance current I, the sensitivity of the arrangement being characterised by the value I/e_x. Although this ratio can be made large, consistency is bad. This is mainly due to the uncertain behaviour of reaction couple produced by the air flow on the vane pointer and since the mechanical spring couple in instruments of this type must necessarily be small, even very small air couples affect both the zero and final deflected position very materially. It was left to Schutzler (German patent 519159) to show that this difficulty could be overcome in a simple manner by linking up the bridge and galvanometer circuits instead of keeping them independent. This is achieved by applying one of the voltage leads to one end of a resistance R_n contained in the ammeter circuit of the bridge, the other lead passing first to the vane galvo and then to the other end of R_n. The advantages of this circuit are twofold:

(1) any departure from the equilibrium position of the pointer introduces powerful electrical restoring movements D_E due to the detuning of the bridge. These electrical movements act in addition to the very much smaller mechanical movements D_M (spring and air couples), and variations in the latter are thus largely swamped. As a result the zero position is very constant and stable working is possible even if

$$D_M = O \text{ or negative.}$$

(2) In the deflected position, the voltage drop across $R_n = (I + i_g)\ R_n$ must be just sufficient to produce the galvanometer current i_g under the action of the applied *EMF* e_x.

Since i_g is very small compared with I, the sensitivity is very approximately given by

$$\frac{I}{e_x} = \frac{1}{R_n}$$

and can thus be adjusted beforehand in a simple manner.

(3) If $D_M = o$, $i_g = o$ and the sensitivity relation given above holds exactly. The vane galvanometer, although in a stable deflected state, passes no current and acts as a voltmeter of infinite resistance.

If $i_g \neq o$, we have

$$e_x = i_g \ (R_g + R_a + R_n) + IR_n. \quad . \quad . \quad . \quad . \quad (1)$$

$$E = I\,(R_i + R_s + R_n) + i_g\,R_n \quad . \quad . \quad . \quad . \quad (2)$$

where

R_g = resistance of vane galvanometer.
R_a = internal resistance of applied circuit.
R_n = potentiometer resistance already defined.
R_i = equivalent resistance of bolometer bridge.
R_s = resistance of recording ammeter.
I = out of balance bridge current read by ammeter.
$E = EMF$ generated in bridge circuit by deflection of vane galvanometer.
$= Vi_g\sqrt{R_g}$ where V is a constant for the amplifier.

Eliminating i_g from (1) and (2) we obtain

$$I = e_x \frac{(V\sqrt{R_g} - R_n)}{(AB + R_n\,V\sqrt{R_g} - R_n^2)}$$

$$= \left(\frac{e_x}{R_n}\right)\left\{1 - \frac{AB/R_n}{(AB/R_n + V\sqrt{R_g} - R_n)}\right\}$$

where $A = (R_i + R_g + R_n)$

$B = (R_g + R_a + R_n)$

The sensitivity is thus less than the ideal $\frac{e_x}{R}$ by a small amount, which is calculable if all the resistances in the circuit, as well as the factor V, are known. Moreover, if V is constant, the correction forms a constant percentage of the ideal.

The author shows how the correction factor can be determined in a simple manner. An EMF source of very low internal resistance is applied to the intake terminals of the amplifier and the current I_o flowing in the bridge circuit is determined.

An adjustable resistance R_a is then added to the intake circuit till I_o is reduced to .9 of its original value.

The correction factor is then

$$= \left(\frac{1}{9}\right)\left(\frac{(R_g + R_n)}{R_a}\right)$$

It is quite easy to keep this factor down to $2-3$ per cent. and in special cases $\frac{1}{2}$ per cent. has been achieved. Moreover, it should be noted that this correction is practically constant over the whole scale.

As the consistent functioning of the amplifier depends on the magnitude of the electric restoring couple, everything should be done to render this as large as possible, whilst the mechanical restoring couple should be as small as possible.

By a slight modification, Schutzler's circuit can also be used to amplify currents instead of voltages. For this purpose the vane galvo is joined in series with a resistance R_x, the new circuit forming a shunt to the resistance R_n already discussed. The terminal leads carrying the current i_x are attached to the galvanometer terminals.

In this case we have

$$I = i_x (R_v + R_n) / R_n$$

provided there is no mechanical restoring couple.

In the presence of such a couple, correction factors similar to those already discussed in the case of voltage measurements arise.

Amplifications I/ig of the order 2×10^4 are readily possible, enabling voltages as low as $1 mV$ and currents of the order of $.3 \mu A$ to be readily recorded.

In conclusion, the author deals with the response of the amplifier to rapidly varying voltages and currents. When used as a voltmeter, the electrical damping can usually be made sufficient to prevent oscillations in the record. For current measurements, the response can be improved by the provision of a condenser in parallel with the recorder and resistance R_v.

LIST OF SELECTED TRANSLATIONS.

No. 72.

NOTE.—Applications for the loan of copies of translations mentioned below should be addressed to the Secretary (R.T.P.3), Ministry of Aircraft Production, and not to the Royal Aeronautical Society. Copies will be lent as far as availability of stocks permits. Suggestions concerning new translations will be considered in relation to general interest and facilities available.

Lists of selected translations have appeared in this publication since September, 1938.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
		AERO AND HYDRODYNAMICS.
2200	Pfriem, H.	*The Laws of Reflection of Two Dimensional Pressure Waves of Large Amplitude.* (Forschung, Vol. 12, No. 5, Sept.-Oct., 1941, pp. 244-56.)
2217	Gortler, H.	*On the Influence of Wall Curvature on the Production of Turbulence.* (Z.A.M.M., Vol. 20, No. 3, June, 1940, pp. 138-147.)
2221	Pfriem, H.	*Notes on the Mutual Superposition of Un-damped 2 dimensional Pressure Waves of Large Amplitude.* (Akustische Zeitschrift, Vol. 7, No. 2, March, 1942, pp. 56-65.)
2234	Gortler, H.	*A New Approximation Method for the Numerical Evaluation of Free Turbulence Problems.* (Z.A.M.M., Vol. 22, No. 5, Oct., 1942, pp. 244-254.)
2239	Heinrich, G. ...	*The Equations of Flow of a Gas/Liquid Mixture.* (Z.A.M.M., Vol. 22, No. 2, April, 1942, pp. 117-118.)
		AIRCRAFT AND ACCESSORIES.
2188	Junkers	*Cabin Airheater (Exhaust Operated). German Patent* 734,304. (Flugsport, Vol. 35, No. 14, October, 1943, p. 62.)
2189	A.E.G.	*V.P. Mechanism Operated by Thermal Expansion of Control Member (Electrically Heated). German Patent* 734,871. (Flugsport, Vol. 35, No. 14, October, 1943, p. 58.)
2190	Junkers	*Boundary Layer Control by Suction. German Patent* 736,114. (Flugsport, Vol. 35, No. 14, October, 1943, p. 62.)
2191	——	*Method of Ventilating and Heating Pressure Cabins. German Patent* 737,644. (Flugsport, Vol. 35, No. 14, 9/10/43, p. 62.)
2192	Voigt, C.A. ...	*Elastic Support for Engines Mounted in Tandem. German Patent* 736,594. (Flugsport, Vol. 35, No. 14, 9/10/43, pp. 60-61.)

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
2193	Arado	*Construction of Fixed and Retractable Radiators. German Patent* 735,302. (Flugsport, Vol. 35, No. 14, October, 1943, p. 61.)
2194	Schroeder	*Parachute Opening Shock Damper. German Patent* 736,638. (Flugsport, Vol. 35, No. 14, October, 1943, p. 64.)
		MATERIALS.
2219	Glaubitz, H. ...	*The Influence of Slip on the Pitting of Gear Teeth.* (Z.V.D.I., Vol. 7, Nos. 35-36, 4/9/43, pp. 573-74.)
2224	Weibke, F.	*Experience in the Production of Lanthanum by Electrolysis from the Chloride Melt.* (Z. of Electrochemie, Vol. 45, No. 7, 1939, pp. 518-20.)
		PRODUCTION.
2195	——	*The Centrifugal Casting of Gear Wheels.* (Z.V.D.I., Vol. 88, Nos. 7-8, 19/2/44.)
2216	Schmidt, G. Ehret, L. ...	*The Effect of High Frequency Supersonic Vibrations on Metallic Melts.* (Z. of Electrochemie, Vol. 43, No. 11, 1937, pp. 669-74.)
2222	——	*Device for Stripping Insulation from Electric Conductors.* (Der Fleiger, Vol. 22, No. 7, July, 1943, pp. 211-12.)
2236	Pekker, Y. L. ...	*Improvements in Pulverized Coal Furnaces with Turbulent Burners.* (Sov. Kotleturbe, No. 1, 1940, pp. 25-29.)
		INSTRUMENTS.
2205	Leist, K. ... ... Knornschild, E.	*Temperature Measurements of High Speed Machine Parts.* (Jahrbuch der deutsche I.F.F., Vol. 2, 1937, pp. 289-94.)
2222	——	*Fault Detector for Hydraulic Systems.* (Flugsport, Vol. 36, No. 1, 19/1/44.)
		WIRELESS AND ELECTRICITY.
2165	Kemelkov, V. S. ...	*An Investigation on Impulse—Spark Discharge.* (J. Tech. Phys., U.S.S.R., Vol. 10, No. 17, 1940, pp. 1426-1433.)
2235	Kracke, W. Schmid, W. E. ...	*Magnetic Screening of Aircraft and Aircraft Components.* (Luftwissen, Vol. 10, No. 5, May, 1943, pp. 128-135.)
2241	Dallenbach, W. ...	*The Reciprocity Theorem of the Electromagnetic Field.* (Arch. fur. Elekrotech, Vol. 36, No. 3, 31/3/42, pp. 153-65.)

TITLES AND REFERENCES OF ARTICLES AND PAPERS SELECTED FROM PUBLICATIONS REVIEWED IN R.T.P.3.

Requests for further information or translations should be addressed to R.T.P.3, Ministry of Aircraft Production, giving item and reference numbers.

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THEORY AND PRACTICE OF WARFARE.

Strategy and Tactics.

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1	23624	G.B.	*Bombing Policy—Why I believe in the Night Offensive.* (J. Barlow, Flight, Vol. 45, No. 1,847, 18/5/44, p. 531.)
2	23774	Germany ...	*The Economic and Political Importance of South-East Europe.* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, pp. 51-52.)
3	23822	G.B.	*Air Force Targets—No. 37. 'Krupp's Engineering and Armament Works.* (The Engineer, Vol. 177, No. 4,612, 2/6/44, p. 431.)
4	23932	U.S.S.R. ...	*Fighter Tactics.* (G. Suyakov, Air Fleet News, Vol. 27, No. 1, January, 1944, pp. 13-21.)
5	24068	Germany ...	*German Mock Aerodromes (Descriptive Paper).* (Capt. Ivashnev, Air Fleet News, Vol. 26, No. 16, August, 1943, pp. 22-25.)

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6	24237	U.S.A. ...	*Sewage Sludge Used as Camouflage Material.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 21.)
7	24455	G.B.	*Invasion Close-up. Invasion Day Air News.* (Flight, Vol. 45, No. 1,851, 15/6/44, pp. 632-635.)
8	24735	G.B.	*M.A.P. Control of Power Jets, Ltd.* (Inter. Avia., No. 917, 28/4/44, pp. 12-13.)

Training and Organisation.

9	23626	G.B.	*Aircraft Engineer Training (S.B.A.C. Recommendations.)* (Flight, Vol. 45, No. 1,847, 18/5/44, pp. 534-535.)
10	23860	U.S.A. ...	*Building the A.A.F. — Part VII.—Training of Navigators and Observers.* (Aviation, Vol. 43, No. 3, March, 1944, pp. 182-183, 328-339.)
11	23868	U.S.A. ...	*How the R.C.A.F. Prevents Waste. (Salvage of Miscellaneous Stores).* (J. Montagues, Aviation, Vol. 43, No. 3, March, 1944, pp. 168-169, 324-328.)
12	23872	U.S.A. ...	*Building Battlefront Air Bases. (Work of U.S. Naval Construction Battalions in Pacific).* (S. J. Mathis, Aviation, Vol. 43, No. 3, March, 1944, pp. 180-181, 339-343.)
13	23905	G.B.	*Air Reconnaissance.* (M. Goodwin, Aeroplane, Vol. 66, No. 1,723, 2/6/44, pp. 616-617.)
14	23931	U.S.S.R. ...	*Organisation and Maintenance of Air Co-operation with Ground Troops in Offensive Operations.* (P. Pelyukhov, Air Fleet News, Vol. 27, No. 1, January, 1944, pp. 7-13.)
15	24100	U.S.A. ...	*Training Ground Crews at Chanute Field, Illinois.* (Journal Aero. Sci. (Review Section), Vol. 2, No. 8, August, 1943, pp. 23-47, 67.)
16	24158	U.S.A. ...	*Management Control in the Army Service Forces.* (C. P. Robinson, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 303-310.)
17	24176	U.S.A. ...	*Around the World with the Army Airways Communications System.* (Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 56-57.)
18	24374	U.S.A. ...	*Building the A.A.F.—Part VIII. (Training of Bombardiers).* (Aviation, Vol. 43, No. 4, April, 1944, pp. 178-179.)
19	24450	G.B.	*Training School for Wireless Operators for R.A.F.* (Aeroplane, Vol. 66, No. 1,724, 9/6/44, pp. 643-645.)
20	24486	Canada ...	*Training and Duties of Pilots for Air Observer School.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, pp. 59-61.)
21	24495	Canada ...	*British Commonwealth Air Training Plan will be Reduced.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, pp. 137-138.)

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			Design and Equipment.
22	23607	Switzerland ...	*Cast Steel Storage Cylinders for Methane Gas* (*From Schweizcrische Bauzeitung*). (The Engineer, Vol. 177, No. 4,611, 26/5/44, p. 407.)
23	23840	Germany ...	*Germany Leadership in Large Aircraft Designs* (*Historical Survey from R.I.V. of* 1917 *to Ju* 90 *of* 1941). (W. Wagner, W.T.M., Vol. 47, No. 12, December, 1943, pp. 320-329.)
24	23869	U.S.A. ...	*Oversize Wheel Skate* (*For Handling Aircraft Wheels*). (Aviation, Vol. 43, No. 3, March, 1944, p. 173.)
25	24173	U.S.A. ...	*Passive Defencê—the Protective Armouring of Military Aircraft.* (H. J. Alter, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 4, April, 1943, pp. 45-53.)
26	24188	Germany ...	*Focke-Wulf* 190—*Wing Structure Details.* (Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 110-111.)
27	24421	U.S.A. ...	*Celestial Navigation Instrument* (*for Use in Life Rafts*). (Aero Digest, Vol. 44, No. 6, 15/3/44, p. 147.)
28	24493	Germany ...	*U.S. Army Gets Junkers* 88 *Fighter-Bomber Intact for Testing.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, p. 116.)
29	24496	Canada ...	*Testing Machine for Parachutes.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, p. 148.)
30	24497	Canada ...	*Surface Combustion Janitrol Heater for Douglas Skymaster.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, p. 150.)
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31	23448	U.S.S.R. ...	*The Tokarew Pistol* (*Soviet Army Pistol*). (S. Wagner, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 441-442.)
32	23699	U.S.S.R. ...	*The Soviet Automatic Rifle* (*Model* 36 '*Simonow*' *and Model* 40 '*Tokarew*'). (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 635.)
33	23810	Germany ...	*Enemy Weapons Show Effect of Critical Material Shortages* (*Cartridge Cases, Shells, Armour Plate, Rubber, etc.*). (J. Haydock, The Machinist, Vol. 88, No. 2, 22/4/44 (Armament Supplement).)
34	23900	G.B.	*British Rocket Carrying Aircraft.* (Aeroplane, Vol. 66, No. 1,723, 2/6/44, p. 602.)
35	24133	Germany ...	37 *m.m. Anti-Tank Gun Installation of Ju* 87 (*Photographs*). (Der Adler, No. 8, 18/4/44, p. 173.)
36	24216	Germany ...	*German Fragmentation Bombs.* (Inter. Avia., Nos. 915-916, 15/4/44, pp. 29, I.)
37	24223	Germany ...	*Ju* 87 *Fitted with Anti-Tank Guns.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 22.)
38	24226	U.S.A. ...	*New American Incendiary Oil Bomb* (500 *lb.*). (Inter. Avia., Nos. 915-916, 15/4/44, p. 25.)
39	24470	G.B.	*Rocket Projectiles from British Aircraft.* (Flight, Vol. 45, No. 1,849, 1/6/44, p. 588.)
			Military Types (G.B.).
40	23608	G.B.	*The Miles* 35 *and* 39 *Aircraft.* (The Engineer, Vol. 177, No. 4,611, 26/5/44, p. 414.)

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41	23628	G.B.	*The Gloster F9/37 Two-Motor Fighter.* (Aeroplane, Vol. 66, No. 1,721, 13/5/44, pp. 557/559.)
42	23849	G.B.	*Design Analysis No. 5 Bristol Beaufighter.* (Aviation, Vol. 43, No. 3, March, 1944, pp. 117-137.)
43	24049	G.B.	*Hawker Typhoon. Part III.—Tail Unit, Fuselage Decking, Machined Parts, etc.* (W. E. Goff, Aircraft Production, Vol. 6, No. 68, June, 1944, p. 263.)
44	24205	G.B.	*Vickers "Warwick" Transport (Wellington Development).* (Inter. Avia., Nos. 915-916, 15/4/44, pp. 14, I.)
45	24207	G.B.	*Fairey "Barracuda" Dive Bomber.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 15.)
46	24208	G.B.	*Percival Proctor IV. (Photograph).* (Inter. Avia., Nos. 915-916, 15/4/44, p. I.)
47	24732	G.B.	*Hawker "Tempest" and "Tornado" Fighters.* (Inter. Avia., No. 917, 28/4/44, p. 11.)
48	24733	G.B.	*Spitfire XII.* (Inter. Avia., No. 917, 28/4/44, pp. 11-12.)
49	24387	G.B.	*The Spitfire VIII.* (Aeroplane, Vol. 66, No. 1,725, 16/6/44, p. 661.)
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50	23629	U.S.A. ...	*The Chance-Vought Corsair II. (Recognition Details).* (Aeroplane, Vol. 66, No. 1,721, 13/5/44, pp. 560-561.)
51	23630	U.S.A. ...	*The Republic P-47 Thunderbolt (Recognition Details).* (Aeroplane, Vol. 66, No. 1,721, 13/5/44, pp. 560-561.)
52	23864	U.S.A. ...	*Fairchild UC.61A Forwarder (Design Detail).* (Aviation, Vol. 43, No. 3, March, 1944, p. 197.)
53	24023	U.S.A. ...	*Douglas C47 Amphibian Combat Transport (Photo).* (American Aviation, Vol. 7, No. 22, 15/4/44, p. 24.)
54	24180	U.S.A. ...	*"Grasshoppers" Prove Worth in War (Army Observation Light Planes).* (F. M. Reck, Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 75, 210.)
55	24210	U.S.A. ...	*Lockheed "Lightning" P-38 Standard Fighter.* (Inter. Avia., Nos. 915-916, 15/4/44, pp. 16-17.)
56	24211	U.S.A. ...	*Grumann F7F Dive Bomber.* (Inter. Avia., Nos. 915-916, 15/4/44, pp. 17-18.)
57	24212	U.S.A. ...	*Grumann F6F (Photograph).* (Inter. Avia., Nos. 915-916, 15/4/44, p. I.)
58	24213	U.S.A. ...	*Northrop P-61 Night Fighter (Black Widow).* (Inter. Avia., Nos. 915-916, 15/4/44, p. 18.)
59	24214	U.S.A. ...	*Consolidated Torpedo Bomber PBY-1 (Sea Wolf).* (Inter. Avia., Nos. 915-916, 15/4/44, p. 18.)
60	24215	U.S.A. ...	*North American B-25 Medium Bomber (Mitchell), Weight Details.* (Inter. Avia., Nos. 915-916, 15/4/44, pp. 18-19.)
61	24419	U.S.A. ...	*The New Long-range Lockheed Lightning Escort Fighter.* (Aero Digest, Vol. 44, No. 6, 15/3/44, p. 132.)
62	24452	U.S.A. ...	*Douglas DC7 Transport.* (Aeroplane, Vol. 66, No. 1,724, 9/6/44, p. 651.)
63	24738	U.S.A. ...	*Martin JRM-1 (Transport Version of Mars).* (Inter. Avia., No. 917, 28/4/44, p. 15.)

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65	24740	U.S.A.	... *Consolidated CB-24 "Liberator" (Transport version of B-24).* (Inter. Avia., No. 917, 28/4/44, p. 15.)
66	24741	U.S.A.	... *Douglas A20 "Havoc" converted into Douglas P-70 Night Fighter.* (Inter. Avia., No. 917, 28/4/44, p. 16.)
67	24742	U.S.A.	... *Republic P-47D "Thunderbolt" (fitted with Water Injection for Extra Boost).* (Inter. Avia., No. 917, 28/4/44, p. 16.)
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68	23577	U.S.S.R.	... *The PE-2 Russian Light Bomber (RTP3 Transl., No. 2,045).* (Aircraft Engineering, Vol. 16, No. 183, May, 1944, pp. 124-127.)
69	23930	U.S.S.R.	... *Stormoviks over the Battlefield.* (V. Jungmeister, Air Fleet News, Vol. 27, No. 1, January, 1944, pp. 2-7.)
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70	23935	Germany	... *German Focke-Wulf F.W.190-A4 and A5 Fighters.* (L. Pavlonsky, Air Fleet News, Vol. 27, No. 1, January, 1944, p. 27.)
71	24392	Germany	... *The Luftwaffe's Anti-Invasion Aeroplanes.* (Aeroplane, Vol. 66, No. 1,725, 16/6/44, pp. 669-670.)
72	24458	Germany	... *Fokker G1 Fighter with Twin Tail, Booms and Engines (Photograph).* (Flight, Vol. 45, No. 1,851, 15/6/44, p. 642.)
73	24747	Germany	... *Ju 87 "Tank Buster." I.* (Inter. Avia., No. 917, 28/4/44, p. 19.)
74	24748	Germany	... *Arado Ar 240 Reconnaissance Fighter Bomber. I.* (Inter. Avia., No. 917, 28/4/44, p. 19.)
75	24749	Germany	... *Blohm and Voss B V. 222 Giant Flying Boat (6 engined).* (Inter. Avia., No. 917, 28/4/44, p. 19.)
76	24750	Germany	... *Focke-Wulf F.W. 200 K2 Kurier II. (Long Range Bomber, 4 engined).* (Inter. Avia., No. 917, 28/4/44, p. 19.)
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77	23622	Japan	... *The Mitsubishi OB-O1 Bomber (Photo).* (Flight, Vol. 45, No. 1,847, 18/5/44, p. 530.)
78	24376	Japan	... *Japanese Version of the ME 109 ("Tony").* (Aviation, Vol. 43, No. 4, April, 1944, p. 181.)
79	24389	Japan	... *The New Japanese Aichi Navy O2.* (Aeroplane, Vol. 66, No. 1,725, 16/6/44, p. 666.)
80	24727	Japan	... *Japanese Aircraft (Kawasaki KB-97, Kawanishi T97, Mitisubishi 96-2A, Karigane II) (Recognition Details).* (Flight, Vol. 45, No. 1,852, 22/6/44, pp. a-b.)
81	24752	Japan	... *Japanese Plywood Aircraft.* (Inter. Avia., No. 917, 28/4/44, p. 20.)
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84	24726	France ...	*The S.O. 80 "Biarritz" Twin Engine French Mail Carrier.* (Flight, Vol. 45, No. 1,852, 22/6/44, p. 664.)
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86	24386	G.B.	*Invasion Gliders.* (Aeroplane, Vol. 66, No. 1,725, 16/6/44, p. 660.)
87	24451	G.B.	*Whitley Glider Towing* (*Aircraft and Attachment*). (Aeroplane, Vol. 66, No. 1,724, 9/6/44, p. 647.)
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88	23772	Germany ...	*Technical Troop Units Attached to German Armies in the Eastern Front* (*Organisation Duties, Repair Work on Damaged Russian Plant*). (K. Heinrich, Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, pp. 34-41.)
89	23877	U.S.A. ...	*Ryan School Develops Unique Servicing Equipment.* (Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 84, 224-226.)
90	23907	G.B.	*Air Line Maintenance and Repair.* (Aeroplane, Vol. 66, No. 1,723, 2/6/44, pp. 620-623.)
91	24370	Germany ...	*Field Maintenance of Bosch Magnetos.* (Aviation, Vol. 43, No. 4, April, 1944, pp. 164-167.)
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92	23453	Germany ...	*Instructions for Building A.R.P. Trench Shelters* (*Abstract*). (H. Harder, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 445.)
93	23589	Germany ...	*A.A. and Aircraft Gun Sights—I. General Survey.* (A. Kuhlenkamp, Z.V.D.I., Vol. 87, Nos. 37-38, 18/9/43, pp. 587-590.)
94	23841	Germany ...	*Effect of Experiences Gained in World War I. on the Technical Development of Searchlights.* (F. Thilo, W.T.M., Vol. 47, No. 12, December, 1943, pp. 329-346.)
95	23965	Germany ...	*Mathemetrical Relationships in Friction Drives applied to A.A. Fire Controls.* (A. Kuhlenkamp, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 273-278.)
96	23978	Germany ...	*Standard Pump for Fire Fighting Equipment.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 301-302.)
97	24242	U.S.A. ...	*Electrical Gun Director* (*for A.A. Guns, etc.*). (Scientific American, Vol. 170, No. 1, January, 1944, p. 30.)
98	24244	U.S.A. ...	*Modern Trends in Fire Prevention.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 33).
99	24290	Germany ...	*Remote Control of A.A. Artillery.* (H. Hopf. Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 449-455.)

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100	23771	Germany ...	*Introduction to the Theory of Flow* (*Book Review*) (L. Prandtl, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 671.)
101	24129	U.S.A. ...	*Utility of Statistical Method in Aerodynamics* (*Abstract*). (H. G. Smith, Jour. Aero. Sci. (Review Section), Vol. 2, No. 12, December, 1943, p. 67.)
102	24132	Germany ...	*The Propagation of 2 Dimensional Disturbances in Gases in the absence of Friction* (*Parts I. and II.*) (K. Bechert, Annalen der Physik, Vol. 37, 1940, pp. 89-123; Vol. 38, pp. 1-25.)
103	24346	G.B.	*Note on the Effect of Compressibility on Jones Momentum Method of Measuring Profile Drag.* (A. D. Young, R. and M. (A.R.C. Reports), No. 1,881, 18/2/39, pp. 1-9.)

Wind Tunnels.

104	23587	Australia ...	*Interference in a Wind Tunnel of Octagonal Section* (*Bulletin No. 44, Council for Scientific and Industrial Research, Australia*). (C. K. Batchelor, Aircraft Engineering, Vol. 16, No. 183, May, 1944, p. 127.)
105	23588	India ...	*Characteristics of the 5 x 7 ft. Closed Throat Wind Tunnel of the Indian Institute of Science.* (V. M. Ghatage, Aircraft Engineering, Vol. 16, No. 183, May, 1944, p. 127.)
106	23892	U.S.A. ...	*Army's Vertical Wind Tunnel Test Spins and Dives.* (Aero Digest, Vol. 44, No. 5, 1/3/44, p. 208.)
107	24104	U.S.A. ...	*New Wind Tunnel at Wright Field.* (Journal Aero Sci. (Review Section), Vol. 2, No. 8, August, 1943, p. 139.)
108	24136	U.S.A. ...	*Motors for Stratosphere Wind Tunnel.* (Jour. Aero. Sci., Vol. 2, No. 9, September, 1943, p. 151.)
109	24245	U.S.A. ...	*High Speed Wind Tunnel for Bomb Fuse Tests.* (Scientific American, Vol. 22, No. 1, January, 1944, pp. 34-35.)
110	24354	U.S.A. ...	*Contraction Cone for a Wind Tunnel* (*Errata*). (B. Szczeniowski, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, p. 173.)

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111	23674	U.S.A. ...	*Eddy Diffusion* (*A General Review with some New Data*). (A. A. Kalinsky and C. L. Pien, Industrial and Engineering Chemistry Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 220-223.)
112	23740	Germany ...	*The Transition from Laminar to Turbulent Flow of Gases in Smooth Cylindrical Pipes.* (H. Mache, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 356-357.)
113	23981	Germany ...	*Bearing Friction and Boundary Layer Phenomena* (*with Bibliography*). (S. Kiesskalt, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, pp. 321-324.)

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114	24120	U.S.A.	... *Boundary Layer Problems in the Atmosphere and Ocean* (*Annals of New York Academy of Sciences, Vol.* 44, *Art. I.*, 104 *pp.*) (*Book Review*). (Various Authors, Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, November, 1943, p. 140.)
115	24131	Germany	... *Turbulent Flow between Two Rotating Coaxial Cylinders.* (F. Wendt, Ing. Arch., Vol. 4, No. 6, December, 1933, pp. 577-595.)

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116	23669	U.S.A.	... *Weir Flow in Overflowing Tanks.* (K. Kammermeyer, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 202-204.)
117	23927	U.S.A.	... *Experimental Fluid Dynamics Applied to Engineering Practice* (*with Bibliography*). (G. A. Hankins, Jour. of Am. Soc. Nav., Eng., Vol. 56, No. 1, February, 1944, pp. 136-158.)
118	23968	Germany	... *Flow Measurements of Viscous Liquids by the Throttle Plate Method* (*with special reference to rendering Calibration independent of Viscosity at small Re.*). (R. Witte, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 289-290.)
119	24359	U.S.A.	... *Experimental Determination of Hull Displacement.* (E. G. Stout, Aviation, Vol. 43, No. 4, April, 1944, pp. 121-125, 277-283.)

AIRCRAFT AND AIRSCREWS.

Civil, Mail and Cargo Transport.

120	23997	U.S.A.	... *Increased Volume of Air-Mail Carried over Foreign and Domestic Routes* (*Postmaster General's Report*, 1943). (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, pp. 41, 51.)
121	23998	U.S.A.	... *C.A.B. Report on Aviation Insurance.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, p. 42.)
122	23999	U.S.A.	... *C.A.B. New Proposals for Certification of Pilots.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, pp. 43, 51.)
123	24003	U.S.A.	... *Domestic Air Carrier Statistics—Operations for Jan.*, 1944. (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, pp. 48-49.)
124	24025	Brazil	... *Brazilian Air Lines* (*Figures for* 1943). (American Aviation, Vol. 7, No. 22, 15/4/44, p. 52.)
125	24108	U.S.A.	... *Bibliography on Air Cargo.* (A. G. Renstrom, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 10, October, 1943, pp. 61-70.)
126	24118	U.S.A.	... *Survey of U.S. Overseas Mail Service* (*C.A.A. Publication*). (Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, November, 1943, p. 131.)
127	24124	U.S.A.	... *Some Problems Encountered by the Air Transport Command in the Handling and Movement of Air Cargo.* (H. R. Harris, Jour. Aero. Sci. (Review Section), December, 1943, Vol. 2, No. 12, pp. 7-13, 29.)

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128	24128	U.S.A. ...	*Post-War Aviation—Part I.* (*A Selective Bibliography on Peacetime Plans and Problems*). (A. G. Renstrom, Jour. Aero. Sci. (Review Section), Vol. 2, No. 12, December, 1943, p. 47.)
129	24134	U.S.A. ...	*Technical Functions and Responsibilities of the Civil Aeronautics Administration.* (*The Airport Program, Airways Engineering, Radio Land-Line Communications, Signals, Air Traffic Control, Aircraft Engineering, Flight Engineering and Factory Inspection, Technical Development, Human Engineering in Aviation*). (W. A. M. Burden and others, Jour. Aero. Sci., Vol. 12, No. 9, September, 1943, pp. 7-39, 151.)
130	24193	U.S.A. ...	*Summary of Air Mail Routes and Services.* (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 167.)
131	24195	U.S.A. ...	*Map Stresses Economic Aspects of Global Overland Air Routes.* (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 169.)
132	24373	U.S.A. ...	*Looking Ahead to Air Cargo Markets—Part I.* (R. M. Kinzel, Aviation, Vol. 43, No. 4, April, 1944, pp. 176-177, 251.)
133 •	24490	Canada ...	*Canadian Pacific Air Lines* (*in Eastern Quebec*). (K. Edgar, Canadian Aviation, Vol. 17, No. 3, March, 1944, pp. 87-92.)

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134	23620	G.B.	*Rhombic Ruminations* (*The Warren-Young Tandem Monoplane*). (N. H. Warren, Flight, Vol. 45, No. 1,847, May, 1944, pp. 526-527.)
135	23631	G.B.	*And What of To-morrow?* (*Importance of the Sailplane in Future Aviation*). (Aeroplane, Vol. 66, No. 1,721, May, 1944, pp. 562-563.)
136	24632	U.S.A. ...	*The Bossi Helicopter.* (Scientific American, Vol. 170, No. 4, April, 1944, p. 192.)
137	23641	G.B. U.S.A. ...	*Aircraft in Flying Attitudes* (*Civil Lancaster, Lodestar, Commando, Albermarle*). (Flight, Vol. 66, No. 1,721, 25/5/44, pp. a-b.)
138	24022	U.S.A. ...	*Consolidated Vultee Fast Post-War Airliner* (*Model 39*) (*Photos of Interior Fittings, etc.*). (American Aviation, Vol. 7, No. 22, 15/4/44, pp. 18-19.)
139	24071	Germany ...	*German Transport Aircraft* (*Brief Descriptive Notes*). (M. Vladimirov, Air Fleet News, Vol. 26, No. 16, August, 1943, p. 32.)
140	24172	U.S.A. ...	*Progress of the Vought-Sikorsky Helicopter Program in 1942.* (I. I. Sikorsky, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 4, April, 1943, pp. 41-43.)
141	24217	U.S.A. ...	*Budd Steel Cargo Planes, RB-125.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 19.)
142	24219	U.S.A. ...	*New American Cargo Glider* (*Capacity 9,000 lb.*). (Inter. Avia., Nos. 915-916, 15/4/44, p. 20.)
143	24357	U.S.A. ...	*Global Air Transport and the Flying Boat's Role.* (C. H. Schildhauer, Aviation, Vol. 43, No. 4, April, 1944, pp. 112-115, 283-287.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
144	24448	G.B. ...	... *"Slip Wing" Biplane by F. Hills and Sons, Ltd.* (Aeroplane, Vol. 66, No. 1,724, 9/6/44, p. 634.)

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145	23478	U.S.A.	... *Design of Aircraft and its Related Accessories from a Maintenance Viewpoint (Abstract).* (C. McMullen, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 26-27.)
146	23479	U.S.A.	... *The Age of Cargo Flight (Conversion of Warplanes to Cargo Ships) (Abstract).* (P. E. Burbank, S.A.E. Journal, Vol. 52, No. 3, March, 1944, p. 26.)
147	23884	U.S.A.	... *Design of Efficient Fuselage Shell Structures.* (W. H. Statler, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 110-117.)
148	23933	U.S.S.R.	... *Influence of Moisture on Wooden and Composite Aircraft.* (K. Moskatov, Air Fleet News, Vol. 27, No. 1, January, 1944, pp. 22-23.)
149	24035	U.S.A.	... *C.A.B. Proposals for Increasing Take-off and Landing Weights (A.L.P.H. Discussion).* (G. B. Dobben, American Aviation, Vol. 7, No. 22, 15/4/44, pp. 38-39.)
150	24061	Germany	... *The Effect of Rounding-off an originally Sharp Leading Edge on the Resistance of Wings.* (E. Wolff, Ing. Arch., Vol. 4, No. 6, December, 1943, pp. 521-544.)
151	24080	U.S.A.	... *Progress in Aircraft Plywood, 1941-42 (with Bibliography).* (T. D. Perry, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 2, February, 1943, pp. 7-16.)
152	24082	U.S.A.	... *Acrylics in Aviation.* (D. S. Frederick, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 2, February, 1943, p. 25.)
153	24099	U.S.A.	... *The Control of Life Expectancy in Airplane Structures (with Bibliography).* (R. B. Bland and P. E. Sandorff, Journal Aero. Sci. (Review Section), Vol. 2, No. 8, August, 1943, pp. 7-21.)
154	24117	U.S.A.	... *A.N.C. Handbook on the Design of Wood Aircraft Structures.* (Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, November, 1943, pp. 130-131.)
155	24360	U.S.A.	... *Key Considerations in Pressurized-Cabin Design.* (D. B. Thurston, Aviation, Vol. 43, No. 4, April, 1944, pp. 126-129, 255-261.)
156	24361	U.S.A.	... *Metal Plus Plastic Makes New Aircraft Flooring ('Panelyte').* (Aviation, Vo 43, No. 4, April, 1944, pp. 130-131, 240.)
157	24380	U.S.A.	... *N.E.8630 for Welded Airframe (Data Sheet).* (Aviation, Vol. 43, No. 4, April, 1944, pp. 197-199.)

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158	23498	Germany	... *A Criticism of Paper Entitled "Comparison of Various Methods of Determining Flight Speed at Great Altitudes" (R. Schmidt, Luftwissen, Vol. 9, No. 9, September, 1942) (R.T.P. Trans. 1797).* (H. D. Black, Journal of the Royal Aeronautical Society, Vol. 48, No. 401, May, 1944, pp. 159-161.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
159	23871	U.S.A.	...	*Cruise Control for Flying Efficiency. VII.—Maximum Range and Loading.* (D. Speas and others, Aviation, Vol. 43, No. 3, March, 1944, pp. 178-179, 299-307.)
160	24089	U.S.A.	...	*Engineering of Power Control and Altitude Selection in Air Line Operation.* (R. D. Speas, Jour. Aero. Sci. (Review Section), Vol. 2, No. 7, July, 1943, pp. 23-31.)
161	24114	U.S.A.	...	*Developing Maximum Efficiency in the Operation of Long Range Transport Aircraft.* (W. M. Masland, Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, November, 1943, pp. 45-54, 151.)
162	24469	G.B. ...	...	*Approach Attitudes.* (Flight, Vol. 45, No. 1,849, 1/6/44, pp. 584-585.)
				Stability and Control.
163	23580	G.B. ...	...	*Vibrations in Aircraft. Part IV.—Effects of Vibration and Practical Methods of Treatment.* (R. G. Manley, Aircraft Engineering, Vol. 16, No. 183, May, 1944, pp. 133-135.)
164	23581	G.B. ...	...	*Wing Lift Distribution.* (W. L. Morse, Aircraft Engineering, Vol. 16, No. 183, May, 1944, pp. 136-138.)
165	23717	Germany	...	*Fundamental Equations of Flight Mechanics* (*Digest*). (A. Crocco, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 345-346.)
166	24355	U.S.A.	...	*The Effects of a Fuselage upon the Stability of an Airplane.* (C. E. Pappas, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 174-182.)
				Accessories.
167	23476	U.S.A.	...	*Comparison of Hydraulic and Electrical Accessory Systems in Aircraft.* (W. C. Trautman and R. E. Middleton, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 94-99.)
168	23613	U.S.A.	...	*Aircraft Electric Power Supply System* (*with Bibliography*). (J. H. Yarmack, Electrical Communication, Vol. 21, No. 3, 1943, pp. 159-166.)
169	23686	G.B. ...	...	*Metal Couplings for Aircraft Piping.* (Machinery, Vol. 64, No. 1,646, 27/4/44, pp. 462-463.)
170	23850	U.S.A.	...	*A.C. vs. D.C. in High-Altitude Aircraft.* (R. W. Gemmel and J. C. Cunningham, Aviation, Vol. 43, No. 3, March, 1944, pp. 138-141, 344-348.)
171	23852	U.S.A.	...	*Pertinent Problems in Electric Control Design* (*Design of Switches, etc.*). (F. W. Hottenroth, Aviation, Vol. 43, No. 3, March, 1944, pp. 144-145, 343-344.)
172	23856	U.S.A.	....	*Prime Axiom in Hydraulics is : Banish Dirt.* (*Aircraft Hydraulic System*). (H. J. Marx, Aviation, Vol. 43, No. 3, March, 1944, pp. 156-158, 343.)
173	23875	U.S.A.	...	*Electrical Systems for Large Aircraft* (*with Bibliography*) (*Part I.*). (W. K. Boice and L. G. Levoy, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 72-76, 228-230.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
174	23880	U.S.A.	... *Plastic Fixtures Modernise Aircraft Cabin Lighting.* (L. Schepmoes, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 96, 199.)
175	23896	U.S.A.	... *Electric Power for Aircraft.* (W. J. Clardy, Electrical Engineering, Vol. 59, July, 1940, pp. 385-388.)
176	24034	U.S.A.	... *United Aid Lines Gadget for Saving Fueling Time* (*Hose Re-winding*). (American Aviation, Vol. 7, No. 22, 15/4/44, p. 37.)
177	24270	U.S.A.	... *Cellulose Sponge to Reduce Fire Hazard in Aircraft.* (Industrial Engineering Chemistry (News Edition), Vol. 22, No. 8, 25/4/44, p. 682.)
178	24356	U.S.A.	... *Notes on Rudder Pedal—Force Characteristics.* (H. R. Pass, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 183-187.)
179	24372	U.S.A.	... *Portable Pressure Tank Aids Pre-Oiling.* (Aviation, Vol. 43, No. 4, April, 1944, p. 169.)
180	24383	U.S.A.	... *Continental Air Lines Grinding-Dust Remover* (*Suction Fan Used*). (Aviation, Vol. 43, No. 4, April, 1944, p. 174.)
181	24420	U.S.A.	... *Elimination of Nose Gear Shimmy of Tricycle Landing Gear by use of Two Wheels Rotating Together on a Common Axle.* (C. B. Livers and J. B. Hurt, Aero Digest, Vol. 44, No. 6, 15/3/44, pp. 134-137, 226.)
182	24482	U.S.A.	... *Air Spring Landing Gear.* (Journal of the Aeronautical Sciences (Review Section), Vol. 3, No. 4, April, 1944, p. 157.)
183	24492	Canada	... *Control Valves for Hydraulic Systems of Aircraft.* (Canadian Aviation, Vol. 17, No. 3, March, 1944, pp. 108-114.)
			Propellers.
184	23578	G.B. ...	... *Airscrew Stress Coefficients.* (T. H. Day, Aircraft Engineering, Vol. 16, No. 183, May, 1944, pp. 128-130.)
185	23889	U.S.A.	... *Controllable-Pitch Blade Fan Kit for Temperature Control in I.C. Engines.* (Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 143-145.)
186	23989	Germany	... *Tests on Propeller and Kaplan Pumps* (*See Corrigendium Z.V.D.I., Vol. 87, Nos. 27-28, p. 448* (*Digest*). (M. Medici, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 331-332.)
187	24069	U.S.S.R.	... *Governing of Hydraulically Operated V.P. Propellers* (*Service Notes*). (V. A. Semenav, Air Fleet News, Vol. 26, No. 16, August, 1943, pp. 25-29.)
188	24084	U.S.A.	... *The Tocco Process of Heating Propeller Blade Shank by Electrical Induction.* (Journal of the Aero. Sci. (Review Section), Vol. 2, No. 2, February, 1943, pp. 110-111.)
			Testing.
189	23497	G.B. ...	... *Flight Testing Methods* (*Detailed Survey*). (E. T. Jones, Journal of the Royal Aeronautical Society, Vol. 48, No. 401, May, 1944, pp. 99-158.)

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190	23865	U.S.A. ...	*Curtiss Propeller Test Bed* (*Photograph*). (Aviation, Vol. 43, No. 3, March, 1944, p. 256.)
191	24362	U.S.A. ...	*Aeroproducts' Airscrew Flight-Test Equipment* (*Use of Eight-Frame-a-Second Camera, Strain Gauges, etc.*). (C. S. Ricker, Aviation, Vol. 43, No. 4, April, 1944, pp. 132-141.)
			De-Icing.
192	23611	G.B.	*The Avoidance of Icing in Flight.* (The Engineer, Vol. 177, No. 4,611, 26/5/44, pp. 408-409.)
193	24233	U.S.A. ...	*Ice-Formation Studied under Flight Conditions.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 15.)
			Airfields and Maintenance.
194	23644	Canada ...	*Flight-Strip Construction along the Alaska Highway* (*Methods and Costs on Eight Auxiliary Airfields*). (Roads and Bridges, Vol. 82, No. 5, May, 1944, pp. 41-43, 81-84.)
195	23645	Canada ...	*Moisture Contents of Highway Subgrades and Base Courses.* (G. B. Williams, Roads and Bridges, Vol. 82, No. 5, May, 1944, pp. 51-54, 78.)
196	23646	Canada ...	*Ditching with Dynamite* (*Drainage of Wet, Swampy Areas to be used for Aerodromes*). (Roads and Bridges, Vol. 82, No. 5, May, 1944, p. 84.)
197	23647	Canada ...	*Patching Procedure for Concrete Pavements.* (Roads and Bridges, Vol. 82, No. 5, May, 1944, pp. 90-94.)
198	23648	Canada ...	*Effectiveness of Timber Creosoting.* (Roads and Bridges, Vol. 82, No. 5, May, 1944, pp. 88-89.)
199	23649	Canada ...	*Unit Costs of Bituminous Surface Treatment.* (A. K. Hay, Roads and Bridges, Vol. 82, No. 5, May, 1944, pp. 50, 75.)
200	23996	U.S.A. ...	*Tough Zoysia Grass to be given Test as Cover for Flying Fields.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, p. 41.)
201	24000	U.S.A. ...	*C. A. A. Gives Hints on Plastic Windshield Repairs.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, p. 44.)
202	24002	U.S.A. ...	*C. A. A. Study on Seaplane Harbours.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, p. 43.)
203	24111	U.S.A. ...	*Unique Wood Hangar at Fairchild Plant.* (Journal of the Aero. Sci. (Review Section), Vol. 2, No. 10, October, 1943, p. 170.)
204	24149	G.B.	*Soil Cement Road Construction, No. 1.* (Engineer, Vol. 177, No. 4,613, June, 1944, pp. 441-443.)
205	24220	U.S.A. ...	*Airport Projects for Oklahoma and Boston.* (Inter. Avia., No. 915-916, 15/4/44, p. 33.)
206	24236	U.S.A. ...	*Modern Methods of Snow Removal and Disposal* (*for Airports, etc.*). (Scientific American, Vol. 170, No. 1, January, 1944, pp. 19-21.)
207	24283	Germany ...	*Safety Devices for Refuelling Stations* (*Special Storage Tank Fittings, etc.*). (H. May, Z.V.D.I., Vol. 87, No. 45-46, 13/11/43, p. 730.)
208	24408	G.B.	*Soil Cement Road Construction—No. II.* (Engineer, Vol. 177, No. 4,614, 16/6/44, pp. 470-472.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.

ENGINES AND ACCESSORIES.

Named Engine Types.

209	23924	U.S.A.	... *Diesel Engine Trends* (*Abstract of S.A.E. Paper*). (E. C. Magdeburger, Jour. of Am. Soc. Nav., Eng., Vol. 36, No. 1, February, 1944, pp. 90-101.)
210	23992	Germany	... *Preliminary Chemical Reactions in the Otto Engine.* (E. Mühlner, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 333.)
211	24070	U.S.S.R.	... *Servicing and Repairing the Allison Engine* (*Notes*). (Y. Nikolaev, Air Fleet News, Vol. 26, No. 16, August, 1943, pp. 29-31.)
212	24247	U.S.A.	... *New Lycoming "Packaged Power" Unit* (*Six Cylinder Horizontally Opposed Aircraft Engine with All Accessories*). (Scientific American, Vol. 170, No.1, January, 1944, p. 38.)
213	24377	G.B. ...	... *Napier Sabre* 24 *Cylinder "H" Section Engine* (*Installed in Hawker Typhoon*) (*Photo*). (Aviation, Vol. 43, No. 4, April, 1944, p. 181.)
214	24393	G.B. ...	... *The Rolls-Royce* 365 *h.p. Eagle VIII Aero-Motor.* (Aeroplane, Vol. 66, No. 1,725, 16/6/44, pp. 674-675.)
215	24751	France	... *Gnôme Rhome Type* 14*R Engine* (*Production in France*). (Inter. Avia., No. 917, 28/4/44, p. 20.)

Design and Installation.

216	23787	Germany	... *Modern Developments in Two-Stroke Engines. Part III.—Working Processes* (*Diesel, Hot Bulb, Spark Ignition*), *with Extensive Bibliography.* (J. Zeman, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 215-219.)
217	23921	U.S.A.	... *Method of Assembling Main Reduction Gears.* (F. E, Freeman, Jour. of Am. Soc. Nav. Eng., Vol. 56. No. 1, February, 1944, pp. 56-61.)
218	24460	G.B. ...	... *Jet Propulsion for Aircraft* (*Correspondence*). (E. S. Bidwell, Flight, Vol. 45, No. 1,851, 15/6/44, p. 647.)

Performance and Testing.

219	23477	U.S.A.	... *Physical Characteristics of Roughness in I.C. Engines* (*Study of Engine Noise and Vibration on sudden opening of Throttle*). (L. Withrow and A. S. Fry, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 100-112.)
220	23524	U.S.A.	... *Difficulties with Engines Installed in Civil Aircraft* (*Chiefly from Accidents and Failures reported to Civil Aeronautics Authority*). (S. H. Rolls, S.A.E. Preprint, Paper read at meeting, January 10-14, 1944, pp. 1-12.)
221	23528	U.S.A.	... *Some Problems Connected with Supercharging Diesel Engines.* (E. W. Wasielewski, S.A.E. Preprint. Paper read at meeting, May 18-19, 1944, pp. 1-11.)
222	23529	U.S.A.	... *Engine Performance with Low Cetane Number Fuels —Laboratory Tests, Field Tests, Cold Room Tests.* (L. W. Griffith, S.A.E. Preprint. Paper read at meeting, May 18-19, 1944, pp. 1-7.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
223	23594	Germany	...	*Experiments on a Vortex Chamber Diesel Engine* (*Digest*). (H. List, Z.V.D.I., Vol. 87, Nos. 37-38, 18/9/43, pp. 604-605.)
224	23762	Germany	...	*Behaviour of Light Metal Piston Materials under Simulated Working Stresses.* (K. Wellinger and G. Stahli, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, pp. 663-666.)
225	23859	U.S.A.	...	*Test Cells Key Engines for Full-Power Performance* (*Description of Engine Test Beds*). (Aviation, Vol. 43, No. 3, March, 1944, pp. 164-165, 292-299.)
226	23982	Germany	...	*Effect of Piston Acceleration on the Compression of Gases* (*Digest*). (H. Pfriem, Z.V.D.I., Vol. 87, Nos. 21-22, 21/5/43, p. 324.)
227	24067	U.S.S.R.	...	*Engine Speeds in Cruising Flight* (*Memorandum*). (T. M. Melkumdv, Air Fleet News, Vol. 26, Nos. 13-17, July, 1943, pp. 29-30.)
228	24113	U.S.A.	...	*A Study of the Volumetric Efficiency of a High-Speed Engine.* (J. Markell and C. F. Taylor, Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, November, 1943, pp. 33-43.)
229	24316	G.B. ...	...	*On Under-Expansion in a Steam-Nozzle with Reference to an Unusual Case.* (L. J. Kastner, Philosophical Magazine, Vol. 35, No. 243, April, 1944, pp. 276-282.)
				Accessories.
230	23437	Germany	...	*Measurement and Design of Lubricated Journal Bearings.* (A. Klemencic, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 409-418.)
231	23442	Germany	...	*Standardised Testing of Journal Bearings, Bearing Materials and Lubricants.* (E. Heidebroek, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 430.)
232	23449	Germany	...	*Research on Piston Ring Friction* (*Digest*). (H. Horgen, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 442-443.)
233	23522	Germany	...	*Contact-Free Packings* (*Book Review*). (K. Trutnovsky Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, p. 512.)
234	23525	U.S.A.	...	*The Effect of Piston Design on Piston Ring Sticking.* (H. F. Bryan, S.A.E. Preprints. Paper read at meeting, May 18-19, 1944, pp. 1-6.)
235	23703	Germany	...	*Circular Arc Cams* (*Digest*). (O. Ambs, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 637-638.)
236	23728	Germany	...	*Frictional Resistance and Bearing Capacity of Michell Pads of Finite Width.* (G. Vogelpohl, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 370-372.)
237	23980	Germany	...	*Electrically Controlled Pneumatic Tube Carriers for Pneumatic Post Plant.* (L. Romeiser, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, pp. 305-320.)
238	23986	Germany	...	*Synchronous Current Generator for Wind Power Plants* (*Digest*). (M. Kloss, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, p. 329.)
239	24050	U.S.A.	...	*New Stromberg Injection Carburettors for Small Airplane Engines.* (American Aviation, Vol. 7, No. 22, 15/4/44, p. 70.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Servicing and Maintenance.
240	23483	U.S.A.	... *Reconditioning Brake Drums* (*Abstract*). (J. V. Basset, S.A.E. Journal, Vol. 52, No. 3, March, 1944, p. 56.)
241	23894	U.S.A.	... *Carburettor and Induction Icing.* (Aero Digest, Vol. 44, No. 5, 1/3/44, p. 212.)
242	24122	U.S.A.	... *Plastic Covers Protect Airplane Engines.* (Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, Nov., 1943, p. 169.)
243	24189	U.S.A.	... *New Fire Extinguishers for the Power Plant* ('*Alneumatic*' *System*). (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 147.)
244	24369	U.S.A.	... *Servicing Cuno Filters.* (Aviation, Vol. 43, No. 4, April, 1944, pp. 157-163, 287-291.)
			Special Engine Types.
245	23432	U.S.A.	... *Progress in Gas-Burning Diesel Engines and Plants.* (Robert Cramer, A.S.M.E. Preprint. Paper read at meeting, May 8-10, 1944, pp. 1-4.)
246	23521	Germany	... *Wind Power Generating Plant* (*Book Review*). (K. Bilau, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, p. 512.)
247	23591	Germany	... *Standardisation of Terms and Formulae for I.C. Engines* (*D.I.N. Provisional Specification*). (Z.V.D.I., Vol. 87, Nos. 37-38, 18/9/44, pp. 593-594.)
248	23920	U.S.A.	... *Fuel Oil Capacities of Sprayer Plates* (*for Mechanical Pressure-atomizing Fuel Oil Burners*). (F. J. Wiegand, Jour. of Am. Soc. Nav. Eng., Vol. 56, No. 1, February, 1944, pp. 50-55.)
249	23922	U.S.A.	... *Pressure Losses in Marine Fuel Oil Systems.* (C. Beck and H. M. Miller, Jour. of Am. Soc. Nav. Eng., Vol. 56, No. 1, February, 1944, pp. 62-83.)
			Turbines, Pumps, Boilers.
250	23429	U.S.A.	... *Gas Turbines Present Status and Future Prospects. A General Review.* (S. A. Tucker, A.S.M.E. Preprint. Paper read at meeting, May 8-10, 1944, pp. 1-6.)
251	23430	U.S.A.	... *The Basic Gas Turbine Plant and Some of its Variants.* (J. K. Salisbury, A.S.M.E. Preprint. Paper read at meeting, May 8-10, 1944, pp. 1-11.)
252	23447	Germany	... *Steam Turbine for Inlet Temperatures of* 600°. (F. Liceni, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 441.)
253	23461	Germany	... *Controlling Hydraulic High Speed Presses by means of Rotary Controllable Pressure Oil Piston Pumps.* (K. Schwencke, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 391-398.)
254	23729	Germany	... *Control Forces in Water Turbines* (*Digest*). (H. Gerbes, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 372-373.)
255	23735	Germany	... *Calculation of the Gas Turbine Process, Taking into Account the Variations in Specific Heat.* (E. Schmidt, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 355.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
256	23798	Germany ...	*Thermal Pump for Simultaneous Cooling and Heating.* (Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 231.)
257	23929	U.S.A. ...	*New Supercharger for Marine Engines (S.A.E. Paper).* (A. Lysholm and others, Jour. of Am. Soc. Nav. Eng., Vol. 56, No. 1, February, 1944, pp. 171-177.)
258	23984	Germany ...	*Twin Set Multi-Stage Centrifugal Pump with Axial Thrust Compensation.* (Various Authors, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, p. 327.)
259	24063	Germany ...	*Deformation, Stress and small Oscillations of Bars with Initial Curvation and Twist, Rotating about a Transverse Axis (with special reference to Turbine Blades under Centrifugal Load).* (H. Reissner, Ing. Arch., Vol. 4, No. 6, December, 1933, pp. 551-569.)
260	24151	G.B.	*Gas Turbines and Jet Propulsion Power Plant (32nd Wilbur Wright Memorial Lecture).* (Sir Roy Fedden, Engineer, Vol. 177, No. 4,613, June, 1944, pp. 449-450.)
261	24167	U.S.A. ...	*A.S.M.E. Boiler Code (Proposed Revisions).* (Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 334-336.)

Thermodynamics.

262	23527	U.S.A. ...	*An Analysis of the Heat Flow into Pistons (of Internal Combustion Engines).* (Carl H. Paul, S.A.E. Preprints. Paper read at meeting, May 18-19, 1944, pp. 1-5.)

FUELS AND LUBRICANTS.

General (Research, Testing, etc.).

263	23431	U.S.A. ...	*Operation and Maintenance of a Crude Oil Pipe Line Without Spare Units.* (J. G. Norton, A.S.M.E. Preprint. Paper read at meeting, May 8-10, 1944, pp. 1-7.)
264	23503	U.S.A. ...	*Furfural Solution Temperatures of Hydrocarbons (for the Determination of Miscibility Solution Temperatures of Petroleum Fractions).* (H. T. Rice and E. Lieber, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 107-109.)
265	23564	U.S.A. ...	*Phase Equilibria in the Hydrocarbon Systems (Methane-Carbon Dioxide System in the Gaseous Region).* (H. H. Reamer and others, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 88-90.)
266	23592	Germany ...	*Investigations into Knock Rating Problems (Co-operative Fuel Research in Germany).* (W. Wilke and E. Singer, Z.V.D.I., Vol. 87, Nos. 37-38, 18/9/43, pp. 595-598.)
267	23743	Germany ...	*The Combustion Process of Gas Mixtures in Pipes (Luminosity Records and Striation Photographs).* (E. Schmidt, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 358.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
268	23985	Germany	...	*Bomb-Proof Underground Oil Tanks* (*Discussion*). (S. Dyhr, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, pp. 328-329.)
269	24266	U.S.A.	...	*Report of Committee on Petroleum Reserves* (*American Petroleum Institute*). (Industrial Engineering Chemistry (News Edition), Vol. 22, No. 8, 25/4/44, pp. 640-643, 669.)
				Liquid Fuels.
270	23475	U.S.A.	...	*How will the 100-Octane Aviation Gasolene Program Affect Post-War Motor Gasoline?* (B. K. Brown and D. P. Barnard, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 87-93.)
271	23679	U.S.A.	...	*Higher Paraffin Hydrocarbons — Correlation of Physical Properties.* (A. W. Francis, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 256-260.)
272	23733	Germany	...	*Synthetic Fuel from Calcium Carbide* (*Paraldehyde*) (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 374.)
273	23757	Germany	...	*Measurement of Boiling Points and Heat Content of Fuel Mixtures* (*Benzol-Alcohol*). (E. Eckert, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 268-269.)
274	23858	U.S.A.	...	*Fuel Weight Measures for Better Flight Performance* (*Density of Petrol*). (J. J. Heatley, Aviation, Vol. 43, No. 3, March, 1944, pp. 162-163, 307-312.)
275	23899	G.B. ...	...	*Synthesis of Gasoline by the Fischer-Tropsch Process. Part I — Abstract of Translation from Brennstoff Chemie* 1943, *Vol.* 13, *No.* 4 *in the Refiner, Dec.* 1943, 22 (12) 429-436. (F. Fischer and others, Journal of the Institute of Petroleum, Vol. 30, No. 244, April, 1944.)
276	24249	U.S.A.	...	*Ethyl Alcohol from Waste Wood by a Modified Scholler Process.* (W. L. Faith and J. A. Hall, Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, pp. 525-526.)
				Diesel Fuels.
277	23480	U.S.A.	...	*Diesel Fuels — A Review of Present Knowledge* (*Abstract*). (C. C. Moore and B. T. Anderson, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 29-30.)
278	23530	U.S.A.	...	*Filtration of Diesel Fuel and Lubricating Oils.* (H. V. Nutt, S.A.E. Preprint. Paper read at meeting, May 18-19, 1944, pp. 1-12.)
279	23531	U.S.A.	...	*Outlook for Post-War Diesel Fuels* (*Technical requirements*). (A. L. Foster, S.A.E. Preprints. Paper read at meeting, May 18-19, 1944, pp. 1-8.)
				Gaseous Fuels.
280	23726	Germany	...	*Charcoal Gas for Two-Stroke Engines.* (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 367-368.)
281	23748	Germany	...	*Reduction in Energy Consumption* (*with Special Reference to the Gas Industry*). (Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 239.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
282	23777	Germany	...	*Instructions for Propane Gas Installation on Motor Vehicles.* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, pp. 56-57.)
283	23941	U.S.A.	...	*Maximum Carbon in Carburized Cases.* (F. E. Harris, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 683-686.)
				Solid Fuels.
284	23749	Germany	...	*Combustion of Coal with High Ash and Water Content in Boilers.* (H. Lent, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 241.)
285	23987	Germany	...	*Recent Development in the use of Pulverized Coal for Boiler Furnaces.* (E. Rammler, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, pp. 329-330.)
286	24282	Germany	...	*Drying of Raw Lignite Prior to Briquetting.* (O. Kraushaar, Z.V.D.I., Vol. 87, Nos. 45-46, 13/11/43, pp. 727-730.)
				Oils and Lubricants.
287	23436	U.S.A.	...	*The Friction Properties of Various Lubricants at High Pressures (Record of Tests).* (J. Boyd and B. F. Robertson, A.S.M.E. Preprint. Paper read at meeting, June 19-22, 1944, pp. 1-6.)
288	23474	U.S.A.	...	*Oil Aeration (with Discussion) (Comprehensive Study of Causes and Pressure Pump Failures, etc.).* (R. J. S. Pigott, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 73-86, 93.)
289	23482	U.S.A.	...	*A Laboratory Method of Evaluating Cutting Oils (Abstract).* (H. L. Moir and others, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 30-31.)
290	23526	U.S.A.	...	*Development of Heavy Duty Oils for Lubrication of Engines of Military Vehicles.* (W. B. Bassett, S.A.E. Preprints. Paper read at meeting, May 18-19, 1944 pp. 1-8.)
291	23673	U.S.A.	...	*Fanweed Seed Oil (Potential Substitute for Rapeseed Oil).* (J. R. Clopton and H. O. Triebold, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 218-219.)
292	23680	U.S.A.	...	*Corrosivity of Lubricating Oils. Existent and Potential.* (G. W. Waters and H. D. Burnham, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 263-271.)
293	23784	Germany	...	*Substitution of Fatty Materials by Mineral Oils in the Fabrication of Metal Parts (Drilling, Cutting, Polishing, Drawing, Rolling and Heat Treatment).* (P. Beuerlein, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 205-208.)
294	24250	U.S.A.	...	*Canadian Chemistry (Power Alcohol from Sulphite Electricity, Conducting Adhesive, New Refinery for Vegetable Oils, etc.).* (S. J. Cook, Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, pp. 527-565.)
295	24260	U.S.A.	...	*Analysis of Commercial Oils and Fats. (American Chemical Society Standard Method).* (Industrial Engineering Chemistry (News Edition), Vol. 22, No. 8, 25/4/44, pp. 606-608.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
296	24271	U.S.A. ...	*Newer Aliphatic Chemicals* ("*Cellosolve*," *Ethylhexanol; Water soluble Waxes, Lubricants, Glycol Cellulose Films; Mold Binder for Casting Alloys, etc.*). (H. B. McClure, Industrial Engineering Chemistry (News Edition), Vol. 22, No. 6, 25/3/44, pp. 416-421.)

THEORY OF ELASTICITY.

General.

297	23583	G.B. ...	... *The Practical Application of Stress Strain Theory.* (F. C. Hoffman, Aircraft Engineering, Vol. 16, No. 183, May, 1944, pp. 143-146.)
298	23983	Germany	... *Effect of Cross-sectional Area on Fatigue Strength.* (L. Ruchman, Z.V.D.I., Vol. 87, Nos. 21-22, 29/5/43, pp. 325-327.)
299	24040	U.S.A.	... *Stresses in the Diaphragms of Diaphragm—Pumps.* (A. M. Binnie, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 37-42.)
300	24066	Germany	... *Notes on Experimental Solution of the Torsion Problems.* (L. Prandtl, Ing. Arch., Vol. 4, No. 6, Dec., 1933, p. 606.)
301	24197	G.B. ...	... *Fracture: Its Energy Distribution and Specific Energy.* (A. C. Vivian, Engineering, Vol. 157, No. 4,090, June, 1944, pp. 421-424.)
302	24348	U.S.A.	... *Methods of Analysis for Torsion with Variable Twist.* (Th. Von. Karman and N. B. Christensen, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 110-124.)
303	24352	U.S.A.	... *A Note on Inelastic Buckling.* (N. J. Hoff, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 163-164.)

Beams, Columns, Frames.

304	24064	Germany	... *Mathematical Evaluation of Torsion Experiments on Wooden Bars.* (H. Honig, Ing. Arch., Vol. 4, No. 6, Dec., 1933, pp. 570-576.)
305	24065	Germany	... *Determination of Bending Stresses of Connecting Rods of High Speed Engines.* (O. Heck, Ing. Arch., Vol. 4, No. 6, Dec., 1933, pp. 596-605.)
306	24295	Germany	... *Stresses in Vehicle Frames and Design for Optimum Utilisation of Material* (*with special reference to Agricultural Machines*). (W. Trost, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 467-472.)
307	24350	U.S.A.	... *Analysis of Fuselage Rings by the Column Analogy.* (D. A. Du Plantier, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 137-152.)
308	24351	U.S.A.	... *A New Method of Calculating Natural Modes of Uncoupled Bending Vibration of Airplane Wings and other Types of Beams.* (N. O. Myklestad, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 153-162.)
309	24353	U.S.A.	... *Analysis of the General Beam-Column by the Collocation Method.* (Y. Nubar, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 165-173.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Plates, Slabs, Shells.
310	23450	Germany ...	*New Method of Calculating Stresses in Discs* (*Digest*). (U. Wagner, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 443-444.)
311	23433	U.S.A. ...	*Strengthening of Circular Holes in Plates Under Edge Loads.* (L. Beuskin, A.S.M.E. Preprint. Paper read at meeting, June 19-22, 1944, pp. 1-9.)
312	23751	Germany ...	*Shell Type of Structure in Building.* (A. Pucher, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 251-260.)
313	24041	U.S.A. ...	*The Intrinsic Theory of Thin Shells and Plates. Part II.—Application to Thin Plates.* (Wei-Zang Chien, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 43-59.)
314	24042	U.S.A. ...	*Effect of a Small Hole on the Stresses in a Uniformly Loaded Plate.* (M. Greenspan, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 60-71.)
315	24062	Germany ...	*Strength Calculation of Loaded Cover Plates Possessing Axial Symmetry* (*with special reference to the case when the Fixation Couples at Edge are unknown*). (F. Schultz-Grunow, Ing. Arch., Vol. 4, No. 6, Dec., 1933, pp. 545-556.)
316	24315	G.B.	*Equilibrium of a Thin Slab on an Elastic Foundation of Finite Depth* (*Mathematical Theory*). (A. H. A. Hogg, Philosophical Magazine, Vol. 35, No. 243, April, 1944, pp. 265-276.)
			MATERIALS.
			A. Properties.
			Iron and Steel.
317	23435	U.S.A. ...	*The Effect of Grain Size and Subzero Treatment on the Productivity of Four High Speed Steels.* (*Steels were used for cutting tools of lathes*). (S. M. Depoy, A.S.M.E. Preprint. Paper read at meeting, June 19-22, 1944, pp. 1-5.)
318	23440	Germany ...	*Evaluation of the Properties of High-Strength Structural Steels for Welded Girders.* (O. Graf, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 422-424.)
319	23484	U.S.A. ...	*Preferred Specifications for Aeronautical Steels—National Emergency Steel Specifications* (*N.E.S.S.*). (S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 40-41.)
320	23492	Germany ...	*Creep Strength of Steels as Affected by Structure* (*Grain size*). (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/1943, p. 541.)
321	23508	Germany ...	*Development and Research into Materials for High Precision Instruments* (*High Speed Steels, Machinability of Drawn Steels, Spring Steels, Heat-treatable Steels, Al and Zinc Alloys, etc.*) (*with extensive Bibliography*). (H. Lüpfert, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 481-488.)
322	23510	Germany ...	*The Effect of Diameter on the Properties of Steel Cable.* (W. Püngel and others, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 493-497.)

ITEM NO.	R.T.P REF.			TITLE AND JOURNAL.
323	23520	Germany	...	*Cast Iron Reinforced with Steel* (*Abstract*). (E. Piwowarsky, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, p. 511.)
324	23547	U.S.A.	...	*A Study of the Embrittling Effect of Zinc upon Stainless Steel.* (O. H. Henry and R. W. Schroeder, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 287-288, 290.)
325	23546	U.S.A.	...	*A Quick Method of Comparing Weldability of Substitute Steels.* (A. B. Kinzel, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 286-287.)
326	23691	Germany	...	*Behaviour of Structural Steels under Combined Alternating Stresses* (*with Extensive Bibliography*). (W. Sawert, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 609.)
327	23698	Germany	...	*Cast Iron as a Structural Material* (*Book Review*). (K. Josch, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 640.)
328	23755	Germany	...	*Properties of Austenitic Valve Steels Containing Manganese.* (H. Cornelius, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 266-267.)
329	23791	Germany	...	*Creep Strength of Niobium Steels as Affected by Precipitation Hardening.* (A. Krisch, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 227-228.)
330	23792	Germany	...	*The Use of Silicon as an Alloying Element in Structural Steels, S.T.52.* (A. Fry and L. Kirschfeld, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 228-229.)
331	23861	U.S.A.	...	*Heat Distortion of N.E. Steels* (*Data Sheet*). (Aviation, Vol. 43, No. 3, March, 1944, p. 189.)
332	23937	U.S.A.	...	*"X" Constituent* (*Pre-Eutectoid Ferrite*) *in Alloy Steel on Continuous Cooling.* (A. R. Kommel, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 664-665.)
333	23949	U.S.A.	...	*High Strength Cast Iron.* (G. L. Richter, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 669-671.)
334	23952	U.S.A.	...	*Composition of Steel* (*Amer. Inst. Min. and Metal Eng. Meeting*) (*Abstract*). (Metal Progress, Vol. 45, No. 4, April, 1944, pp. 698-699.)
335	23957	U.S.A.	...	*Gray Iron-Steel Plus Graphite* (*Amer. Inst. Min. and Metal. Eng. Meeting*) (*Abstract*). (J. T. Mackenzie, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 703-704, 718.)
336	23975	Germany	...	*Low Temperature Steels.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 300-301.)
337	24287	Germany	...	*Deformation Resistance of Cold-Stretched Steel* (*Digest*). (F. Korber and A. Eichinger, Z.V.D.I., Vol. 87, Nos. 45-46, 13/11/43, pp. 733-734.)
				Al. and Mg. Alloys.
338	23438	Germany	...	*Fatigue Bending Strength of High-Speed Aluminium Alloys* (*Abstract*). (E. V. Rajakovics, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 418.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
339	23470	Germany ...	*Preventing Crack Sensitivity of Welds of Mg. Mn. Cu. Alloys by the Addition of Aluminium* (*Abstract*). (H. Mader and F. Laves, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 406.)
340	23494	Germany ...	*Rate of Age Hardening of Al-Cu-Mg Alloys controlled by addition Agents.* (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, p. 543.)
341	23570	G.B.	*Present Status of the Magnesium Industry in U.S.A.* (*Extracted from Investigation of National Defense Program*). (Light Metals, Vol. 7, No. 77, June, 1944, pp. 264-266.)
342	23571	G.B.	*Aluminium in the Chemical Industries* (*with Special Reference to the Corrosion Problem*)—*Part I.* (Light Metals, Vol. 7, No. 77, June, 1944, pp. 267-273.)
343	23573	G.B.	*Light Alloys in Metal Rectifiers.* (Light Metals, Vol. 7, No. 77, June, 1944, pp. 276-298.)
344	23574	G.B.	*Aluminium and Magnesium in the Electrical Industries.* (B. J. Brajnikoff, Light Metals, Vol. 7, No. 77, June, 1944, pp. 300-308.)
345	23734	Germany ...	*Behaviour of Aluminium in Highly Concentrated Nitric Acid* (*Abstract*). (L. Reschke, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 374-375.)
346	23799	U.S.A./G.B. ...	*High Speed Tapping and its Lubrication* (*Application to Zinc and Aluminium*). (W. M. Halliday, Machinist, Vol. 88, No. 1, 15/4/44, p. 5E.)
347	23835	G.B.	*Magnesium from Sea Water* (*Abstract from Electrical Engineering*). (Electrical Times, Vol. 105, No. 2,740, 27/4/44, p. 479.)
348	23912	G.B.	*Dolomite-Ferro-Silicon Process for Production of Mg.* (*High Temp. Vacuum Furnace*). (Nature, Vol. 153, No. 3,890, 20/5/44, p. 614.)
349	23939	U.S.A. ...	*A Brief History of Magnesium in America* (*up to* 1940). (*Some Description of Dow Plant*). (W. H. Dow, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 675-680.)
350	23963	G.B.	*Alumina from Clay—New U.S. Process.* (Metal Industry, Vol. 64, No. 22, 2/6/44, p. 343.)
351	24086	U.S.A. ...	*Plastic Working of Magnesium Alloy Sheet* (*Blanking Tools, Drawing Dies, Presses, etc.*). (C. E. Lehnhardt, Jour. Aero. Sci. (Review Section), Vol. 2, No. 5, May, 1943, pp. 21-29, 101.)
352	24397	G.B.	*Aluminium Alloy Die Forgings.* (H. F. James, Metal Industry, Vol. 64, No. 24, 16/6/44, pp. 376-377.)
353	24499	G.B.	*Self-Ageing Aluminium Alloy.* (Metal Industry, Vol. 64, No. 24, 16/6/44, p. 375.)
			Non-Ferrous Alloys.
354	23696	Germany ...	*Rapid Extraction of Copper Salts from Waste Liquor* (*Digest*). (F. Sierp, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 632-633.)
355	23780	Germany ...	*Fatigue-Bending Strength of Rolled Zinc Alloys* (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 3-4, January, 1943, p. 61.)

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356	23832	G.B.	...	*Advisory Service on Copper Base Alloy Castings.* (Production and Engineering Bulletin, Vol. 3, No. 16, March, 1944, p. 142.)
357	23862	U.S.A.	...	*Ampco Copper-Base Alloys Data Sheet.* (Aviation, Vol. 43, No. 3, March, 1944, p. 191.)
358	23954	U.S.A.	...	*Manganese and Hydrogen* (*Amer. Inst. Min. and Metal Eng. Meeting*) (*Abstract*). (Metal Progress, Vol. 45, No. 4, April, 1944, pp. 700-701.)
359	23955	U.S.A.	...	*Cartridge Brass* (*Amer. Inst. Min. and Metal Eng. Meeting*) (*Abstract*). (R. S. French and others, Metal Progress, Vol. 45, No. 4, April, 1944, p. 701.)
360	23961	G.B.	...	*Degassing of Tin Bronzes—Development of an Efficient Flux Process.* (W. T. Pell-Walpole, Metal Industry, Vol. 64, No. 22, 2/6/44, pp. 341-342.)
361	23964	G.B.	...	*Grain Growth of 70-30 Brass—The Effect of Cold-Work and Annealing.* (R. S. French, Metal Industry, Vol. 64, No. 22, 2/6/44, pp. 344-348.)
362	23972	Germany	...	*Platinum Tungsten Alloys for Electric Contacts.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 302.)
363	24007	G.B.	...	*Modern Copper Smelting.* (R. A. Wagstaff, Metal Industry, Vol. 64, No. 21, 26/5/44, pp. 327-329.)
364	24234	U.S.A.	...	*Ultra-Low-Melting Alloys* (*Bismuth Alloys*). (F. P. Peters, Scientific American, Vol. 170, No. 1, January, 1944, pp. 16-18.)
365	24399	G.B.	...	*Copper in Powder Metallurgy.* (J. J. Cordiano, Metal Industry, Vol. 64, No. 24, 16/6/44, pp. 378-380.)
				Plastics, Resin, Glues.
366	23499	U.S.A.	...	*Determining Plasticizer Content of Cellulose Esters.* (B. S. Biggs and R. H. Erickson, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 93, 94.)
367	23516	Germany	...	*Strength of Cut Threads in Laminated Plastic Material* (*Digest*). (A. Boden, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 506-507.)
368	23562	U.S.A.	...	*Structure of Pyrodextrins* (*Glues, etc.*). (B. Brimhall, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 72-75.)
369	23565	U.S.A.	...	*Catalytic Vapour-Phase Oxidation of Fatty Oils* (*Application to Plastics, etc.*). (W. L. Faith, Industrial and Engineering Chemistry (Industrial Edition) Vol. 36, No. 1, 14/1/44, pp. 91-92.)
370	23616	U.S.A.	...	*The Polymerization of Styrene and Some Concepts of the Electrical Properties of Plastics.* (A. J. Warner, Electrical Communication, Vol. 21, No. 3, 1943, pp. 180-193.)
371	23675	U.S.A.	...	*Methyl Acrylate Production by Pyrolysis of Methyl Acetoxypropropionate.* (*Methyl Acrylate is an intermediate of Rubber and Artificial Resin*). (C. H. Fisher and others, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 228-234.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
372	23676	U.S.A.	...	*Mechanism of Solvent Action* (*with Particular Reference to Resins*). (A. K. Doolittle, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 239-244.)
373	23681	U.S.A.	...	*Thermal Expansion Properties of Plastic Materials.* (R. F. Clark and L. M. Rynkiewicz, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 279-282.)
374	23722	Germany	...	*New Plastic Poor in Resin Content—Type* 41 (*Wood Flour as Filler*). (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 358.)
375	23759	Germany	...	*New Designations for Moulded Plastics.* (Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 270.)
376	23797	Germany	...	*International Standard for Plastics* (*Paris Congress*). (Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 321.)
377	23805	U.S.A./G.B.	...	*Ground Plastic Spools Retain Critical Dimensions.* (P. G. Weiller, Machinist, Vol. 88, No. 1, 15/4/44, pp. 97-98.)
378	23988	Germany	...	*Plastic Lamp Shades* (*Isolux*). *A.E.G. Trade Communication.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 35.)
379	24130	U.S.A.	...	*Plastic Material Reinforced by Glass Fibres.* (Jour. Aero. Sci. (Review Section), Vol. 2, No. 12, Dec., 1943, p. 175.)
380	24252	U.S.A.	...	*Use of Rayon Cord for Tyres.* (Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, pp. 532-533.)
381	24256	U.S.A.	...	*Giant Resin Dryer* (*Conversion of Liquid Resin to Powder*). (Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, p. 568.)
382	24485	G.B.	...	*Plastics and their Raw Materials* (*with Bibliography*). (Dr. H. Levinstein, Chemistry and Industry, Vol. 63, No. 25, 17/6/44, pp. 226-229.)
383	24489	U.S.A.	...	*Plastic Fireproof Upholstery* (*for Aircraft Seats, etc.*). (Journal of the Aeronautical Sciences (Review Section), Vol. 3, No. 4, April, 1944, p. 167.)

Rubber (Nat. and Syn.).

384	23481	U.S.A.	...	*The Rubber Problem—Present and Future* (*including Table of Properties of Natural and Synthetic Rubbers*). (L. E. Davis, S.A.E. Journal, Vol. 52 No. 3, March, 1944, pp. 28-29.)
385	23501	U.S.A.	...	*Determination of Total and Combined Sulphur in Butyl and Rubber.* (J. Rehner and J. Holowchak, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 98-100.)
386	23550	U.S.A.	...	(*Chemical*) *Stability of Butadiene* (*Used in Synthesis of Rubber*). (R. F. Robey and others, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp 3-7.)
387	23551	U.S.A.	...	*Conductivity of Tread Stocks* (*Natural and Synthetic Rubbers*). (L. H. Cohan and M. Steinberg, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 7-15.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
388	23552	U.S.A.	... *Sulphur Linkage in Vulcanized Rubbers* (*Reaction of Methyl Iodine with Sulphur Compounds*). (M. L. Selker and A. R. Kemp, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 16-28.)
389	23553	U.S.A.	... *Tread Cracking of Natural and Synthetic Rubber Stocks* (*Tests*). (I. B. Prettyman, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 29-33.)
390	23554	U.S.A.	... *Temperature Coefficient of Vulcanization of Bunas.* (L. V. E. Cheney and R. W. Duncan, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 33-36.)
391	23555	U.S.A.	... *Heats of Vulcanization of Synthetic Rubbers.* (P. L. Bruce and others, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 37-39.)
392	23556	U.S.A.	... *Effect of Low Temperature on Young's Modulus of Elastomers* (*Rubber and its Compounds*). (J. W. Liska, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 40-46.)
393	23557	U.S.A.	... *Structure of Copolymers of Isobutylene and Isoprene.* (J. Rehner, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 46-51.)
394	23558	U.S.A.	... *Compounding GR-S with Channel Black and Mineral Rubber.* (H. F. Schwarz, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 51-54.)
395	23559	U.S.A.	... *Butaprene NF. Cold and Oil Resistance Synthetic Rubber.* (R. H. Crossley and C. G. Cashion, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 55-59.)
396	23560	U.S.A.	... *Effect of Blending Natural Rubbers with GR-S.* (R. E. Morris and others, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 60-63.)
397	23671	U.S.A.	... *Sunlight Resistance of Hycar OR Components* (*Artificial Rubber*). (B. S. Garvey and R. A. Emmett, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, p. 209.)
398	23677	U.S.A.	... *Thermoplastic Flow of Polystyrene* (*Artificial Rubber*). (H. M. Foote, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 244-248.)
399	23718	Germany	... *The Elastic Properties of Soft Rubber as a Basis of its Technical Applications.* (H. Roelig, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 347-351.)
400	24031	U.S.A.	... *New High Tension Ignition Cable with Neoprene Sheath-Type Cable.* (American Aviation, Vol. 7, No. 22, 15/4/44, p. 70.)

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401	24248	U.S.A. ...	*Mellon Institute in the Second Year of War.* (*Synthetic Rubber, Wood Waste and many other Practical Subjects. No detailed description.*) (Industrial Eng. Chemis., News Edition, Vol. 22, No. 7, 10/4/44, pp. 506-517.)
402	24251	U.S.A. ...	*Production of Artificial Rubber in U.S.* (Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, pp. 530, 534, 540.)
403	24257	U.S.A. ...	*Division of Rubber Chemistry A.C.S.* (*Programme of Meeting, April 26th-28th*). (Ind. Eng. Chem., News Edition, Vol. 22, No. 7, 10/4/44, pp. 524-564.)
404	24267	U.S.A. ...	*Butadiene Production.* (Industrial Engineering Chemistry (News Edition), Vol. 22, No. 8, 25/4/44, p. 653.)
405	24275	U.S.A. ...	*New Plasticizer Useful in Synthetic Rubber.* (Industrial Engineering Chemistry (News Edition), Vol. 22, No. 6, 25/3/44, p. 479.)
406	24309	G.B.	*Rubber as an Engineering Material.* (J. S. Moyd, Journal of the Inst. of Prod. Engineers, Vol. 23, No. 5, May, 1944, pp. 155-170.)
			Wood and Plywood.
407	23678	U.S.A. ...	*Comparison of Methods for Improving Wood.* (I. Klein and others, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 252-256.)
408	23914	G.B.	*"Cellufix" a New Wood Pump Product* (*Adhesive and Putty.*) (Nature, Vol. 153, No. 3,890, 20/5/44, p. 616.)
409	24048	G.B.	*Plywood Moulding—Thaden Process* (*Eliminates the Pressure Chamber*). (Aircraft Production, Vol. 6, No. 68, June, 1944, p. 262.)
410	24181	U.S.A. ...	*Plywood Characteristics Disclosed by Vibration Tests.* (A. J. Yorgiadis and J. M. Robertson, Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 76-81, 196-204.)
			Glass, Ceramics.
411	23705	Germany ...	*Soda Slag for the Glass and Enamel Industry* (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 639.)
412	23796	Germany ...	*Testing Flatness of Glass Surfaces by the Colour Striation Method.* (Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 230-231.)
413	23802	U.S.A./G.B. ...	*Grinding Procedures Set for Glass Gauges* (*e.g. "Go" and "Not Go" Gauges in Glass*). (Machinist, Vol. 88, No. 1, 15/4/44, pp. 83-86.)
414	24140	G.B.	*The Technique of Glass Manipulation* (*Part 2*). (G. A. Percival, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 500-504.)
415	24141	G.B.	*The Comparative Strengths of Ceramic and other Insulating Materials.* (E. Rosenthal, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 505-507.)
416	24228	U.S.A. ...	*Glass Overcoats Insulate Storage Batteries for Winter Use.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 9.)

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417	24239	U.S.A.	... *What Glass Is and Isn't.* (C. J. Phillips, Scientific American, Vol. 170, No. 1, January, 1944, pp. 22-23, 39.)
418	24345	G.B. ...	... *Optical Workshop Principles.* (*Translation of "Le Travail des Verres L'Optique de Precision."*) (*Book Review*). (C. Dévé, Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 41.)
			Concrete, Brick and Stone.
419	23605	G.B. ...	... *The Design of Concrete Mixes on a Minimum Strength Basis.* (E. E. Morgan, The Engineer, Vol. 177, No. 4,611, 26/5/44, pp. 400-402.)
420	23744	Germany	... *Prevention of the Deleterious Effects of Temperature on Large Concrete Structures.* (B. Hampe, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 368-369.)
421	24238	U.S.A.	... *Linseed Oil Emulsion Minimizes Concrete Scaling.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 21.)
422	24278	Germany	... *New Specifications for Ferro-Concrete Structures and Steel Reinforced Brickwork for Roofs.* (B. Wedler, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 719.)
423	24279	Germany	... *Standardization of Stone used in Building.* (E. Sachse, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 722.)
424	24301	Germany	... *Elastic Properties of Concrete as Determined by Deflection Measurements on an Arched Bridge* (*Digest*). (U. Fischer, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 476-477.)
			Physical Properties, including Corrosion.
425	23452	Germany	... *Intercrystalline Corrosion in Chrome-Manganese Steels* (*Digest*). (L. Schaeben, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 445.)
426	23485	Germany	... *Deformation and Strength of Metals under Creep.* (A. Thum and K. Richard, Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, pp. 513-520.)
427	23845	Germany	... *The Fatigue Strength of Certain Al Alloys under Conditions of Corrosion in Comparison with that of Cast Bronze and Red Brass* (*Advantages of the latter*) (*Digest*). (R. Sterner-Rainer, Schiff und Werft (incorporating Werft Reederei Hafen), Vols. 45-25, Nos. 5-6, March, 1944, p. 68.)
428	23916	G.B. ...	... *Filiform Underfilm Corrosion of Lacquered Steel Surfaces.* (Nature, Vol. 153, No. 3,890, 20/5/44, p. 624.)
429	24286	Germany	... *Statistical Theory of the Strength of Materials.* (K. Velander, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, pp. 732-733.)
430	24288	Germany	... *The Physical Properties of Aqueous Potassium Carbonate Solutions* (*Abstract*). (A. Geierhaus, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 734.)
431	24293	Germany	... *Machinability of Zinc Alloys.* (W. Bieling, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 462-465.)

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432	24299	Germany ...	*Fretting Corrosion as a Combined Chemical and Mechanical Process (Digest).* (K. Dies, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 475-476.)
433	24302	Germany ...	*Testing Aluminium Alloys for Stress Corrosion.* (Z.V.D.I.,Vol. 87, Nos. 29-30, 24/7/43, pp. 477-478.)

B. FABRICATION.

Welding.

434	23512	Germany ...	*On the Problem of Specifications for Welded Lattice Framed Cranes.* (K. Klöppel, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 501-503.)
435	23518	Germany ...	*The Formation of Bubbles in the Gas Welding of Aluminium Alloy Al-Mg 7.* (Th. Ricken and H. Gagel, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, p. 509.)
436	23543	U.S.A. ...	*Welding of Light Gauge Stabilised Stainless Steel.* (S. L. Rich, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 265-S/8.)
437	23544	U.S.A. ...	*Report of Tests on Butt Joints with Through Plate Stiffeners.* (W. J. Krefeld and J. D. Kenney, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 269-S/285.)
438	23548	U.S.A. ...	*The Effect on the Endurance Limit of Submerging Resistance-Welded Fatigue Specimens in a Cold Chamber.* (O. H. Henry and O. L. Calamari, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 291-S/292.)
439	23549	U.S.A. ...	*Device for Measuring Tip Force and Current in Spot Welding.* (H. Wolfe and R. W. Powell, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 293-S/6.)
440	23603	U.S.A. ...	*Residual Stresses in Butt-Welded Steel Plates.* (G. H. R. Griffiths, Welding Research Committee Report, Vol. 6, No. 9, Sept., 1941, pp. 410S-414S.)
441	23604	U.S.A. ...	*Stresses and Overstresses in Welded Structures (Abstract of Dutch Paper).* (D. Rosenthal, Welding Research Committee Report, Vol. 6, No. 9, Sept., 1941, pp. 414S-416.)
442	23667	G.B.	*The Design of Welded Joints (Review).* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, p. 239.)
443	23689	G.B.	*The Welding of Zinc Alloy Die Castings.* (Zinc Alloy Die Casters Association, Machinery, Vol. 64, No. 1,646, 27/4/44, p. 471.)
444	23781	Germany ...	*Protecting Heated Vessels against Acids by means of Soldered Ferro-Silicon Plates (Abstract).* (K. Frank, Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, p. 61.),
445	23800	U.S.A./G.B. ...	*Oxy-Acetylene Fusion Welding of Brass.* (A. Eyles. Machinist, Vol. 88, No. 1, 15/4/44, p. 5E.)
446	23804	U.S.A./G.B. ...	*How to Use Resistance Welding.* (R. T. Gillette, Machinist, Vol. 88, No. 1, 15/4/44, pp. 94-96.)
447	23809	U.S.A./G.B. ...	*Cycle Welding and Cycle Bending (Use of Thermo Setting Plastic Cement for Joints).* (The Machinist, Vol. 88, No. 2, 22/4/44 (Armament Supplement).)

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448	23898	G.B.	*Test Pressure and Safe Dimensions of Welded Pressure Vessels (for Refineries) (Abstract from (Petroleum) Refiner).* (H. F. Lassner, Journal of the Institute of Petroleum, Vol. 30, No. 244, April, 1944, p. 165A.)
449	23909	G.B.	*Electric Welding—Securing Immunity from Shocks.* (H. G. Taylor, Electrical Review, Vol. 134, No. 3,469, 31/5/44, pp. 692-693.)
450	23943	U.S.A. ...	*Weld Tests—Small Samples Versus Full Scale.* (R. E. Kinkeed, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 687-688.)
451	23946	U.S.A. ...	*Test Plugs Cut from Welds.* (R. V. Anderson, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 696-697.)
452	23947	U.S.A. ...	*Improvements in Steel Foundry Methods. Advanced Welding Methods.* (G. A. Lilliequist, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 666-669.)
453	23974	Germany ...	*The Welding of Cast Iron (Book Review).* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 302.)
454	24305	Germany ...	*Working Experiences in the Arcatom Welding of Tools (A.E.G. Communication).* (Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 35.)
			Surface Treatment.
455	23454	Germany ...	*Improving the Durability of Lacquer Coatings on Aluminium Wires (Abstract).* (E. Greulich, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 445.)
456	23459	Germany ...	*Effect of Surface Quality on the Fatigue Strength of Light Metals (Abstract).* (A. Thum, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 350.)
457	23467	Germany ...	*Electrically Heated Baths for Surface Treatment.* (E. Lust, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 405.)
458	23542	U.S.A. ...	*An Investigation of the Surface Treatment of Alclad 24 S-T in Preparation for Spot Welding.* (W. F. Hess and others, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 257-S/265-S.)
459	23719	Germany ...	*Surface Treatment of Aluminium-Magnesium Alloys by Diffusion (Abstract).* (H. Vosskuhler, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 351.)
460	23765	Germany ...	*Copper-Plated Steel Wire for Electric Circuits (Abstract).* (E. Goedecke, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 670.)
461	23960	G.B.	*Electroplate Standards—French Tests for Thickness, Adhesion and Continuity.* (Metal Industry, Vol. 64, No. 22, 2/6/44, p. 340.)
462	24009	G.B.	*Iron Electroplating—A New Combination Sulphate-Chloride Bath.* (R. M. Schaffert and B. W. Gonser, Metal Industry, Vol. 64, No. 21, 26/5/44, pp. 330-332.)
463	24123	U.S.A. ...	*Anti-corrosive Properties of Iridite for the Protection of Zinc and Cadmium Surfaces.* (Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, Nov., 1943, pp. 172-173.)
464	24235	U.S.A. ...	*Phosphate Coatings Improve Corrosion Resistance.* (Scientific American, Vol. 170, No. 1, January, 1944, p. 18.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
465	24246	U.S.A.	...	*Mildew Prevention ('Puratized' Process Protects Paper, Paints, Rubber, etc.).* (Scientific American, Vol. 170, No. 1, Jan., 1944, pp. 35-36.)
466	24276	Germany	...	*Corrosion Resistance of Cladded Al. Zn-Mg Alloys (Abstract).* (Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 714.)
467	24289	Germany	...	*Metal Spraying for Sealing Gas Holders.* (W. Meier, Z.V.D.I., Vol. 87, Nos. 45-6, Nov. 13th, 1943, p. 734).
				Heat Treatment.
468	23441	Germany	...	*Design of Rotary Furnaces (Stresses Involved).* (F. Wingeter, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 425-430.)
469	23517	Germany	...	*Szikle-Rosinek Two Stage Combustion Furnace.* (W. Gumz, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 507-508.)
470	23694	Germany	...	*Effect of Long Time Annealing at Low Temperature on the Yield Point of Steel Poor in Carbon Content (Abstract).* (A. Pomp and A. Eichinger, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 616.)
471	23700	Germany	...	*Annealing of Cold-rolled, Unalloyed Saw Steels (Continuous Process).* (A. Pomp and G. Niebch, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 635-637.)
472	23948	U.S.A.	...	*Improvements in Steel Foundry Methods—High Strength, High Ductility Cast Steels.* (C. F. Joseph, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 668-669.)
473	24281	Germany	...	*Production of High Quality Iron in Rotary Furnaces by the Sturzelberger Process.* (Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 726.)
				Drawing, Rolling, Pressing.
474	23443	Germany	...	*Cold and Hot Rolling of Light Metal Sheets.* (O. Emicke, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 435-438.)
475	23746	Germany	...	*Pressing and Drawing of Thermoplastic Sheets (Digest).* (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 346.)
476	23819	G.B. ...	...	*Current Aluminium Alloy Rolling Practice.* (H. F. James, The Engineer, Vol. 177, No. 4,612, 2/6/44, pp. 420-422.)
477	23940	U.S.A.	...	*Large Carbide Discs Formed by Hot Pressing.* (Metal Progress, Vol. 45, No. 4, April, 1944, pp. 681-682.)
478	23959	G.B. ...	...	*Modern Metal-Rolling Practice—Sheet, Strip and Foil Mills for Non-Ferrous Metals.* (C. E. Davis and L. R. Underwood, Metal Industry, Vol. 64, No. 22, 2/6/44, pp. 338-340.)
479	24004	G.B. ...	...	*Modern Metal-Rolling Practice (Rolling Load-Strip Tension and Lubrication, etc.).* (C. E. Davies and L. R. Underwood, Metal Industry, Vol. 64, No. 21, 26/5/44, pp. 322-324.)
480	24300	Germany	...	*Power Required for the Mannesman Oblique Rolling Process (Digest).* (A. Geleji, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 476-477.)
481	24304	Germany	...	*Rolled Cast Iron (Abstract).* (E. Piwcwarsky, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 478-479.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
482	24398	G.B.	*Rolling Magnesium Alloy* (*Effect of Rolling Temperature on Mechanical Properties*). (Metal Industry, Vol. 64, No. 24, 16/6/44, p. 377.)

Moulding and Casting.

483	23690	G.B.	*Gravity Die Casting in Non-Ferrous Alloys.* (Machinery, Vol. 64, No. 1,646, 27/4/44, p. 472.)
484	23716	Germany ...	*The Stresses Occurring in Die Casting Dies* (*R.T.P.3 Translation, No.* 2,081). (E. Mickel, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 341-345.)
485	23938	U.S.A. ...	*Improved Castings from better Foundry Metallurgy.* (Metal Progress, Vol. 45, No. 4, April, 1944.)
486	23945	U.S.A. ...	*Segregation in Alloy Ingots and Large Castings.* (*Amer. Inst. Min. and Metal Eng. Meeting*). *Abstract.* (S. W. Poole, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 692-695.)
487	23950	U.S.A. ...	*Advanced Casting Methods—Centrifugal Castings,* (C. K. Donoko, Metal Progress, Vol. 45, No. 4. April, 1944, pp. 672-673.)
488	23951	U.S.A. ...	*Advanced Casting Methods—Pressure Moulded Die Castings.* (D. Basch, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 673-674.)
489	24005	G.B.	*Blanking Dies for Aluminium Sheet* (*Mass Production of Zinc-Base Alloy Dies*). (W. W. Broughton, Metal Industry, Vol. 64, No. 21, 26/5/44, pp. 325-326.)

Stamping, Bending, Cutting, Extrusions.

490	23487	Germany ...	*The Cold Extrusion of Metals.* (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, p. 528.)
491	23697	Germany ...	*Device for Flame Cutting of Bevelled Edges.* (H. Brückner, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 633-634.)
492	23801	U.S.A./G.B. ...	*Packing Pipes for Bending.* (W. E. Warner, Machinist, Vol. 88, No. 1, 15/4/44, p. 6E.)
493	23942	U.S.A. ...	*Metal Cutting Nomograph* (*Data Sheet*). (W. W. Gilbert and W. C. Truckenmiller, Metal Progress, Vol. 45, No. 4, April, 1944, p. 686B (two pages).
494	24145	G.B.	*The Design of Stampings of Low Frequency Transformers.* (R. Mawson, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 514-516.)
495	24349	U.S.A. ...	*The Effect of Combined Stresses on the Ductibility and Rupture Strength of Magnesium Alloy Extrusions.* (E. G. Thomsen and J. E. Dorn, Journal of the Aeronautical Sciences, Vol. 11, No. 2, April, 1944, pp. 125-136.)

Soldering and Brazing.

496	23575	Switzerland ...	*Method of Soft Soldering Aluminium* (*Swiss Patent*). (Light Metals, Vol. 7, No. 77, June, 1944, p. 308.)
497	23761	Germany ...	*Hard Soldering of Steel in Artificial Atmospheres* (*Continuous Process*). (Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, pp. 661-662.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
498	23878	U.S.A. ...	*Bonding of Steel and Aluminium (Steel Cylinder Barrel and Al Fins) ('Al-Fin' Process).* (M. G. Whitfield and V. Sheshunoff, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 86-88, 222-224.)
499	23958	U.S.A. ...	*Brazed Cutters (Abstract from The Welding Journal, Jan. 1944, p. 43).* (W. A. Johnson, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 710-712.)
500	24137	G.B.	*Soldering with High Frequency.* (Electronic Engineering, Vol. 16, No. 195, May, 1944, p. 492.)
			Milling, Superfinish and Special Treatment.
501	23434	U.S.A. ...	*Moisture Controlled Air in Metal Processing Using Lithium Chloride Air Treating Equipment. (Processes are :—(1) Cupola Dry Blast. (2) Blast Furnace Dry Blast. (3) Powdered Metal Processing. (4) Magnesium Castings Production. (5) Ball Bearing Production. (6) Miscellaneous Applications).* (R. E. Wills, A.S.M.E. Preprint. Paper read at meeting, June 19-22, 1944, pp. 1-6.)
502	23970	Germany ...	*The Concept of Lapping, Honing and Superfinish.* (Z.V.D.I.,Vol. 87, Nos. 19-20, 15/4/43, pp. 296-297.)
503	24155	U.S.A. ...	*Determining Tool Efficiency in High Speed Milling.* (W. E. Brainard, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 301-302.)
504	34156	U.S.A. ...	*Two Examples of High Speed Milling.* (F. W. Lucht, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 303-304.)
505	24157	U.S.A. ...	*High Speed Milling of Steel with Carbides.* (E. Almdale, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 304, 326.)
			Powder Metallurgy.
506	23462	Germany ...	*The Present Position of Magnetic Powder Testing.* (R. Berthold, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 399-401.)
507	23594	Germany ...	*Powder Metallurgy (Book Review).* (F. Skaupy, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, p. 608.)
508	23944	U.S.A. ...	*Powder Metals—An Outline for Scientific Studies.* (C. Hardy, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 690-691.)
509	23956	U.S.A. ...	*Powder Metals (Amer. Inst. Min. and Metal Meeting) (Abstract).* (Metal Progress, Vol. 45, No. 4, April, 1944.)
			Machines and Tools.
510	23507	U.S.A. ...	*New Machines for Paint Testing.* (Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, p. 144.)
511	23509	Germany ...	*Seven Spindle Horizontal Automatic Lathe for Machining Large Forgings.* (E. Dornhöfer, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 489-492.)
512	23599	Germany ...	*Re-setting Grinding Wheel Surfaces with Diamond-free Tools.* (Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, pp. 590-592.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
513	23666	G.B.	*Tungsten Carbide Tools.* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, pp. 237-239.)
514	23706	Germany ...	*Rotary Forming Tool for Sheet Metal Pressing (Abstract).* (Gröbner, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 639.)
515	23811	U.S.A./G.B. ...	*Corrected Diameters for Circular Form Tools (I and II).* (The Machinist, Vol. 88, No. 2, 22/4/44. (Reference Book Sheet.)
516	23844	Germany ...	*Effect of Type of Cut on the Fatigue Strength of Machined Light Alloy Specimen (Digest) (Advantages of Blunt Tool).* (A. Thum, Schiff. und Werft (incorporating Werft Recderei Hafen), Vol. 45-25, Nos. 5-6, March, 1944, p. 68.)
517	23910	G.B.	*Welding Machines (Letter).* (E. W. Harding, Electrical Review, Vol. 134, No. 3,469, 31/5/44, p. 704.)
518	24008	G.B.	*Punch Press Feed (Automatic Mercury Switch Control).* (Metal Industry, Vol. 64, No. 21, 26/5/44, p. 329.)
519	24154	U.S.A. ...	*Milling Cutters as Cutting Tools.* (A. A. Schwartz, Mechanical Engineering, Vol. 66, No. 5, May, 1944, p. 300.)
520	24163	U.S.A. ...	*Modern Tools of Safety.* (E. A. Clark, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 321-322.)
521	24277	Germany ...	*Indicator Diagrams for Compressed Air Hammers.* (J. Porthen, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 715.)
522	24285	Germany ...	*Planing Machine for Large Compressed Wood Sheets. (Use of Special Milling Cutters.)* (K. Halb, Z.V.D.I., Vol. 87, Nos. 45-6, Nov. 13th, 1943, pp. 731-2.)

C. Inspection.

Chemical Testing.

523	23502	U.S.A. ...	*Cuprieth ylene Diamine as a Solvent for Precise Determination of Cellulose Viscosity.* (R. S. Hatch, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 104-107.)
524	23505	U.S.A. ...	*Electrolytic Determination of Copper in Steel and Cast Iron (With a supplementary Colorometric Procedure for Certain Alloy Steels).* (W. S. Levine and H. Seaman, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 80-82.)
525	23506	U.S.A. ...	*A Selective Spot Reaction for Cadmium.* (F. Feigl and L. I. Miranda, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 141-142.)
526	23656	G.B.	*Effect of Traces of Inorganic Salts on the Fall in Viscosity of Cellulose Nitrate Solution.* (J. S. Gourlay, Journal of the Society of Chemical Industry, Vol. 63, No. 4, April, 1944, pp. 123-124.)
527	23682	U.S.A. ...	*Phase Equilibria in Hydrocarbon Systems, Volumetric Behaviour of n-Butane.* (R. H. Olds and others, Industrial and Engineering Chemistry (Industry Edition), Vol. 36, No. 3, 7/3/44, pp. 282-284.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
528	23701	Germany ...	*Correction Factors for Determining Concentrations of Ammonia Solution (for Use in Refrigeration). (Digest).* (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 637.)
			X-Ray and Infra-Red Rays.
529	23488	Germany ...	*The Detection of Faults when using a Fluorescent Screen in the X-Ray Examination of Materials.* (H. Witte, Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, pp. 529-534.)
530	23500	U.S.A. ...	*Quantitative Determination of Crystalline Materials by X-ray Diffraction.* (S. T. Gross and D. E. Martin, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 95-98.)
531	23545	Germany ...	*Residual Stresses in Pure Tension Revealed by X-Ray Diffraction Method (Abstract) (Z.V.D.I., Vol. 83, No. 5, p. 129, Feb. 4th, 1939).* (F. Bollenrath and others, Welding Research Committee Report, Vol. 7, No. 6, June, 1942, pp. 285-286-S.)
532	23793	Germany ...	*The Determination of Mean Stress Values by X-Ray Diffraction (Displacement of Specimen During Exposure).* (H. Möller, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 229.)
533	23846	Germany ...	*Testing of Plastic Sheets with Infra-Red Rays (Digest).* (F. Steube and P. Kainradl, Schiff. und Werft (incorporating Werft Reederei Hafen), Vols. 45-25, Nos. 5-6, March, 1944, p. 68.)
534	23888	U.S.A. ...	*X-Ray Analysis of Light Metal Alloy Castings.* (R. Taylor, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 133, 200.)
535	23895	Germany ...	*Testing of Plastic Sheets with Infra-Red Ray.* (F. Steuber, Schiff und Werft, Vols. 45-25, Nos. 5-6, Mar. 1944, p. 68.)
536	24183	U.S.A. ...	*Cabinets Facilitate X-Ray Inspection.* (R. Taylor, Aero Digest, Vol. 45, No. 1, 1/4/44, p. 88.)
537	24312	G.B.	*The Influence of Crystal Size on the Absorption Factor as Applied to Debye Scherer Diffraction Patterns (X-Rays).* (A. Taylor, Philosophical Magazine, Vol. 35, No. 243, April, 1944, pp. 215-229.)
			Mechanical and Physical Tests.
538	23455	Germany ...	*Physical Analysis of Fibre Materials (Abstract).* (H. Fehlmann, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 446.)
539	23486	Germany ...	*Rolling Contact Resistance and Pitting of Materials Suitable for Gear Wheels and Ball or Roller Bearings.* (G. Niemann, Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, pp. 521-523.)
540	23495	Germany ...	*Magnetic Alloys Showing Increase or Decrease of Permeability with Temperature.* (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, p. 542.)
541	23601	U.S.A. ...	*Weldability—Cracks and Brittleness under External Load. Part II—Tests for Cracking under External Load: Bend Tests. (Review of Literature to July 1st, 1939.)* (W. Spraragen and G. E. Claussen, Welding Research Committee Report, Vol. 6, No. 9, Sept., 1941, pp. 369, 401-5.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
542	23692	Germany ...	*Hardness Testing of Hardened Parts* (*Digest*), (*V.D.I. Specification Sheet*). (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 615.)
543	23727	Germany ...	*Standardisation of Nomenclature Employed in the Magnetic Powder Test.* (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 369.)
544	23738	Germany ...	*Simple Method for Determining the Heat Conductivity of Metals.* (W. Koch, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 356.)
545	23953	U.S.A. ...	*Shock Test for Metals* (*Amer. Inst. Min. and Metal Eng. Meeting*) (*Abstract*). (L. H. Holloman and others, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 699-700.)
546	24006	Germany ...	*Creep Tests* (*Application to Light Metals at Elevated Temperature*). (*Digest of German Paper in Zeitschr. fur Metallkunde*). (K. Wellinger and E. Keil, Metal Industry, Vol. 64, No. 21, 26/5/44, p. 326.)
547	24148	G.B.	*Testing Steel. No.* 1. (H. Brearley, Engineer, Vol. 177, No. 4,613, June, 1944, pp. 438-440.)
548	24405	G.B.	*Testing Steel. No.* 2. (H. Brearley, Engineer, Vol. 177, No. 4,614, 16/6/44, pp. 458-459.)
549	24406	G.B.	*The Inspection of Metallic Materials—No.* 1. (J. E. Garside, Engineer, Vol. 177, No. 4,614, 16/6/44, pp. 459-462.)

Supersonics, Microscopic Methods.

550	23720	Germany ...	*Detecting Flaws in Sheets by Supersonics* (*Abstract*). (A. Trost, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 352-354.)
551	23794	Germany ...	*The Electron Microscope-Methods for Estimating Spatial Dimensions of Particles on Screen.* (H. O. Müller, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 229-230.)
552	23977	Germany ...	*Comparison of Fibre Structure* (*Microscopical Examination of Artificially Swelled and subsequently Squashed Specimen*). (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 301.)

INSTRUMENTS.

Aircraft.

553	23422	U.S.A. ...	*Absolute Altimeters* (*Historical Review of all Types*). (P. C. Sandretta, Procs. I.R.E., Vol. 32, No. 3, March, 1944, pp. 167-174.)
554	23971	Germany ...	*The Acoustical Altimeter* (*Basic Requirements to be met*). (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 298-299.)
555	24081	U.S.A. ...	*Cambridge Instrument Co.* (*Aero Mixture Indicator, etc.*). (R. Rick, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 2, Feb., 1943, p. 21.)
556	24083	U.S.A. ...	*Western Electric Contributes to Aeronautical Progress* (*Terrain Clearance Indicator*). (F. C. McMullen, Journal of the Aero. Sci. (Review Section), Vol. 2, No. 2, Feb., 1943, p. 27.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
557	24087	U.S.A.	...	*Magnesyn Remote Reading Compass.* (D. W. Smith, Jour. Aero. Sci. (Review Section), Vol. 2, No. 5, May, 1943, pp. 31-36.)
558	24088	U.S.A.	...	*Vultee Radio Recorder (for Airplane Flight Performance Data).* (H. D. Giffen, Jour. Aero. Sci. (Review Section), Vol. 2, No. 7, July, 1943, pp. 9-21.)
559	24186	U.S.A.	...	*Weight and Balance Indicator for Flying Boats.* (Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 106-108.)
				Electrical.
560	23451	Germany	...	*Direct Recording Electric Torsiograph (Digest).* (K. Staiger, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 444-445.)
561	23466	Germany	...	*Electrically Operated Rev. Counter of the Sampling Type.* (P. Kofler, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 403-404.)
562	23707	Germany	...	*The Bolometer Amplifier.* (L. Merz, A.T.N., Z. 64/2, T.27, Feb., 1937.)
563	23732	Germany	...	*Electric Two Parameter Recorder of High Sensitivity (Abstract).* (W. Lueg, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 374.)
564	23760	Germany	...	*Direct Reading Electrical Capacity Meter (A.E.G. Trade Communication).* (Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 35.)
565	24230	U.S.A.	...	*High Speed Circuit Tester.* (Scientific American, Vol. 170. No. 1, January, 1944, p. 12.)
566	24487	U.S.A.	...	*An Electromagnetic Wind Tunnel Balance.* (H. P. Liepmann, Journal of the Aeronautical Sciences (Review Section), No. 4, April, 1944, pp. 31-35.)
				Electronic.
567	24138	G.B.	...	*The Betatron (An Electron Induction Accelerator).* (D. W. Kerst, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 493-496.)
568	24144	G.B.	...	*An Electronic Insulation Tester.* (Electronic Engineering, Vol. 16, No. 195, May, 1944, p. 513).
				Optical, Physical.
569	23456	Germany	...	*A.E.G. Flash Light Stroboscope (A.E.G. Communication).* (Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, p. 35.)
570	23702	Germany	...	*A.E.G. Spark Stroboscope FG 6/1.* (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 35.)
571	23745	Germany	...	*Shape and Weight of the Gyroscope (Nomogram for Optimum Dimensions) (Abstract).* (H. H. G. Seyforth, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 373.)
572	24143	G.B.	...	*The Fürth Microphotometer.* (R. W. Pringle, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 512-513.)
573	24243	U.S.A.	...	*The Flux Gate Compass (Permits Accurate Navigation Near the Poles).* (Scientific American, Vol. 170, No. 1, Jan., 1944, pp. 32-33.)

ITEM NO.	R.T.F. REF.		TITLE AND JOURNAL.
			Mechanical, Automatic.
574	23778	Germany ...	*Device for Automatically Controlling Transmitted Torque on Spanners.* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, p. 57.)
575	23789	Germany ...	*An Integrating Machine for Ordinary Differential Equations.* (R. Sauer and H. Posch, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 221-224.)
576	23879	U.S.A. ...	*Weight and Balance Computer Speeds Cargo Distributions.* (M. Jakosky, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 90-94, 218-222.)
577	23893	U.S.A. ...	*Automatic Protractor Checks Angles in any Position. (Used by Curtiss Wright for Checking Ailerons, Flaps for Plumb Level and Degree of Incline).* (Aero Digest, Vol. 44, No. 5, 1/3/44, p. 210.)
578	23919	U.S.A. ...	*Accuracy of Shaft Horsepower Data (Torsion Meters).* (H. L. Coffin, Jour. of Am. Soc. Nav. Eng., Vol. 56, No. 1, February, 1944, pp. 44-49.)
579	23991	Germany ...	*Measuring Small Displacements (Digest).* (K. Staiger, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 332-333.)
580	24047	G.B.	*Regenerative Dynamometers.* (Aircraft Production, Vol. 6, No. 68, June, 1944, pp. 259-261.)
581	24284	Germany ...	*Simple Device for Demonstrating Forced Damped Vibrations.* (W. Finke, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, p. 731.)
582	24498	Canada ...	*Vernier Gauge (for use with Gauge Blocks).* (Canadian Aviation, Vol. 17, No. 3, March, 1944, p. 128.)
			PRODUCTION.
			Organisation and Control.
583	23590	Germany ...	*How to Assess Increases in Production Output (Standards of Comparison, etc.).* (A. Schmidt, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, pp. 587-590.)
584	23652	G.B.	*Selection of Staff by means of Intelligence and Aptitude Tests (with Bibliography).* (R. C. Words and A. S. Macdonald, J. Inst. Elect. Eng. (Part I—General), Vol. 91, No. 40, April, 1944, pp. 148-157.)
585	23659	G.B.	*Women on War Work. I.—Land Drainage, Optical Instruments, Drop Forgings.* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, pp. 204-209.)
586	23661	G.B.	*The Emergency Machine Tool Armament Corps. (A Civilian Industrial Organisation of about 100 Men).* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, pp. 217-220.)
587	23715	Germany ...	*Increasing Production Output (V.D.I. Exhibition) (Improved Fabrication Methods, Short-Cuts, Special Machine Tools, etc.).* (H. Kotthaus, Z.V.D.I., Vol. 37, Nos. 23-24, 12/6/43, pp. 337-340.)
588	23747	Germany ...	*Increasing Output by the Proper Organisation of Labour.* (H. Böhrs, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 233-239.)
589	23853	U.S.A. ...	*Scott's Plan for Reconverting Small War Plants (Financial Suggestions).* (E. M. Scott, Aviation, Vol. 43, No. 3, March, 1944, pp. 110-111, 355-356),

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590	24162	U.S.A. ...	*The Job Ahead for Management* (*Symposium*). (Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 317-320.)
591	24291	Germany ...	*Works Suggestion Schemes as a Means of Increasing Output* (*German Exhibition*). (H. Siedel, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 455-456.)
592	24396	G.B.	*Aluminium Foundry Producing Aluminium Air Cooled Cylinder Heads with 90% Female Labour.* (M. J. Gregory, Metal Industry, Vol. 64, No. 24, 16/6/44, pp. 373-375.)
			Research and Training.
593	23827	G.B.	*Aspects of Modern Foremanship. I.—The Foreman as Instructor.* (E. W. Smyth, Production and Engineering Bulletin, Vol. 3, No. 16, March, 1944, pp. 105-109.)
594	23833	G.B.	*Importance of College Laboratory.* (*In Training Electrical Engineers*)—*I.* (O. I. Butler, Electrician, Vol. 132, No. 3,439, 28/4/44, p. 363.)
595	23834	G.B.	*Fundamental Scientific Research. Its Practical Importance and Application* (*Abstract*). (Sir E. V. Appleton, Electrician, Vol. 132, No. 3,439, 28/4/44, pp. 369, 353, 354.)
596	23911	G.B.	*Recruitment and Training of Teachers* (*McNair Report*). (Nature, Vol. 153, No. 3,890, 20/5/44, pp. 601-603.)
597	23913	G.B.	*Industrial Research Committee of the Federation of British Industries.* (Nature, Vol. 153, No. 3,890, 20/5/44, pp. 614-615.)
598	23976	Germany ...	*The German Engineer and Total War.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 303.)
599	24055	G.B.	*Training Aircraft Engineers* (*S.B.A.C. Proposals*). (Aircraft Production, Vol. 6, No. 68, June, 1944, p. 291.)
600	24159	U.S.A. ...	*Industry's Responsibility for Post-collegiate Education.* (A. R. Stevenson and K. B. McEachron, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 311-312, 314.)
601	24164	U.S.A. ...	*The Unwritten Laws of Engineering. Part I.—What the Engineer Needs to Learn at Once.* (W. T. King, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 323-326.)
602	24310	G.B.	*The Training and Prospects of the Young Production Engineer.* (F. P. Liebert, Journal of the Inst. of Prod. Engineers, Vol. 23, No. 5, May, 1944, pp. 171-184.)
603	24395	G.B.	*The Technical Man in the Foundry Industry.* (J. W. Gardom, Metal Industry, Vol. 64, No. 24, 16/6/44, p. 372.)
			Aircraft Production Methods.
604	23511	Germany ...	*Wood Airscrew Blades* (*Production Methods, Materials, etc.*). (L. Hoffman, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 498-500.)

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605	23568	G.B.	...	*Defects in Light Alloy Sheet and Strip for Aircraft Manufacture* (*Analysis of Surface Defects, their Causes, Prevention and Cure*). (Light Metals, Vol. 7, No. 77, June, 1944, pp. 259-262.)
606	23572	G.B.	...	*Theory and Practice of Light Alloy Foundry Work for the Aircraft Industry—Part II.* (Light Metals, Vol. 7, No. 77, June, 1944, pp. 274-275.)
607	23602	U.S.A.	...	*Progress Report No. 1—Aircraft Spot Welding Research.* (W. F. Hess and others, Welding Research Committee Report, Vol. 6, No. 9, Sept., 1941, pp. 402-409-S.)
608	23685	G.B.	...	*Operations in the Production of Marauder Bombers* (*Punching and Riveting, Milling, Drop Forging of Plates*). (Machinery, Vol. 64, No. 1,646, 27/4/44, pp. 457-460.)
609	23782	Germany	...	*Plastic Wood Dies for Aircraft Construction* (*Abstract*). (H. Tödter, Z.V.D.I., Vol. 87, Nos. 3-4, January, 1943, p. 61.)
610	23854	U.S.A.	...	*Analytical Geometry for Speedier Wing Lofting—I*, (R. W. Feeny, Aviation, Vol. 43, No. 3, March, 1944, pp. 148-149, 291-292.)
611	23867	U.S.A.	...	*Northrop Contributions to Maintenance*—(1) *Removing Manifold Hose from Engine*, (2) *Bending Metal Sheet.* (Aviation, Vol. 43, No. 3, March, 1944, pp. 166-167.)
612	23885	U.S.A.	...	*Design of Spot Welded Aluminium Alloy Aircraft Structures—Part 2.* (A. Epstein and H. O. Klinke, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 121-125, 194-199.)
613	23886	U.S.A.	...	*Popularity of Forged Aircraft Parts.* (H. L. Showalter, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 127-129, 199.)
614	23887	U.S.A.	...	*Power Egg Expedites Engine Maintenance at Lockheed.* (Aero Digest, Vol. 44, No. 5, 1/3/44, p. 130.)
615	23934	U.S.S.R.	...	*Grinding Crankshafts.* (Y. Nikolaev, Air Fleet News, Vol. 27, No. 1, Jan., 1944, pp. 24-25.)
616	23936	U.S.A.	...	*The Progress of Metallurgy and its Problems in Aircraft* (*General Trends, Aluminium Alloys, Steel, Method of Working, e.g. Drawing*). (V. N. Krivok, Metal Progress, Vol. 45, No. 4, April, 1944, pp. 657-663.)
617	24101	U.S.A.	...	*Lofting—the Keynote to Aircraft Production* (*Methods Employed at Bell Aircraft Corp.*). (L. H. Willardson, Journal Aero. Sci. (Review Section), Vol. 2, No. 8, August, 1943, pp. 49-67.)
618	24102	U.S.A.	...	*Designing Aerodynamic Surfaces by the Use of Algebraic and Trignometric Functions to Permit Easy Manufacture.* (J. J. Apalategui and W. B. White, Journal Aero. Sci. (Review Section), Vol. 2, No. 8, August, 1943, pp. 69-75.)
619	24184	U.S.A.	...	*Design of Spot Welded Aluminium Alloy Aircraft Structures* (*Part 3*). (A. Epstein and H. O. Klinke, Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 94-98, 120-122.)

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620	24187	U.S.A. ...	*Levelling Target Aids in Building Plane Jigs.* (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 108.)
621	24116	U.S.A. ...	*The Application of Flash Welding in Airplane Construction (Abstract: Welding Journal, Oct., 1943, pp. 769-775).* (Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, Nov., 1943, p. 127.)
622	24179	U.S.A. ...	*Elimination of Overhead Welding (in the Construction of the Waco CG-4 A Glider).* (Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 74, 126.)
623	24209	G.B.	*Reduction in Man Hours Required for Lancaster and Spitfire.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 16.)
624	24221	U.S.A. ...	*Liquid Cooled Engine Production in the U.S.A.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 20.)
625	24222	U.S.A. ...	*American Military Aircraft Production Figures.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 21.)
626	24225	Japan ...	*Japanese Aircraft Production.* (Inter. Avia., Nos. 915-916, 15/4/44, p. 23.)
627	24364	U.S.A. ...	*Analytic Geometry for Speedier Wing Lofting—Part II.* (R. W. Feeny, Aviation, Vol. 43, No. 4, April, 1944, pp. 145-147, 291-295.)
628	24366	U.S.A. ...	*Methods for Forming Sheet Aluminium—Part I.* (Aviation, Vol. 43, No. 4, April, 1944, pp. 150-152, 276.)
629	24367	U.S.A. ...	*'Near Infra-red' Cuts Bake-Dry-Preheat Time.* (P. H. Krupp, Aviation, Vol. 43, No. 4, April, 1944, pp. 153-154, 239-240.)
630	24382	U.S.A. ...	*PAA Aileron Synchronizing Jig.* (Aviation, Vol. 43, No. 4, April, 1944, p. 175.)
631	24481	U.S.A. ...	*Al-Fin Process for Making Aircraft Engine Cylinders (Bonding Aluminium to Steel).* (Journal of the Aeronautical Sciences (Review Section), Vol. 3, No. 4, April, 1944, pp. 153-157.)
			Other Production Methods.
632	23496	U.S.A. ...	*Production Applications of Flash Welding.* (R. Milmoe, S.A.E. Preprints, Jan. 13th, 1943, p. 10.)
633	23513	Germany ...	*Improved Production Output by the Introduction of Drawing and Stamping (Eliminating Machining Operations).* (Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 504-505.)
634	23569	Germany ...	*Tinning of Light Metals by Means Of Ultrasound (Digest, A.T.Z., Vol. 45, No. 14, Dec., 1942).* (A. E. Thiemann, Light Metals, Vol. 7, No. 77, June, 1944, pp. 263-264.)
635	23593	Germany ...	*The Cutting Profile in Plane Cutting (Research into the Problem of Increasing Cutting Speeds).* (P. Grassmann and R. Bechtle, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, p. 603.)
636	23597	Germany ...	*Increased Output of Drawn Steel Rods by Simultaneous Pulls (Abstract).* (F. Boehm, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, p. 606.)
637	23684	G.B.	*Cutting Large Keyways on Vertical Shapers.* (Machinery, Vol. 64, No. 1,646, 27/4/44.)

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638	23695	Germany ...	*Progress in the Fabrication of Small Sheet Metal Parts and Tubes.* (W. Kreer, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 628-632.)
639	23730	Japan ...	*The Behaviour of Rivets during Riveting (Digest).* (T. Isibasi, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 373.)
640	23764	Germany ...	*Raising Production Output in Vehicle Construction by means of Resistance Butt Welding (A.E.C. Trade Communication).* (Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 35.)
641	23775	Germany ...	*Economies of Material and Working Time in the Production of Iron Core Plates for Transformers.* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, p. 56.)
642	23807	U.S.A. G.B. ...	*Sleeve Joints in Copper Tubing Eliminated.* (B. C. H. Kaiser, Machinist, Vol. 88, No. 1, 15/4/44, p. 104.)
643	23837	G.B.	*"Stitching" Plastics, e.g. Small Balloons (High Frequency Electricity (Abstract).)* (Electrical Review, Vol. 134, No. 3,466, 28/4/44, p. 600.)
644	23966	Germany ...	*New Problems in Refrigerating Machine Design.* (W. Wende, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 279-281.)
645	23967	Germany ...	*Automatic Thread Cutting on Standard Lathes.* (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 282.)
646	23994	—	*The Manufacture of Pre-Stressed Concrete Tubes.* (K. Leuk, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 313-314.)
647	24085	U.S.A. ...	*Thin Case Hardening with Radio Frequency Energy.* (V. W. Sherman, Jour. Aero. Sci. (Review Section), Vol. 2, No. 5, May, 1943, pp. 7-16, 101.)
648	24153	U.S.A. ...	*High Speed Milling with Negative Rake Angles.* (H. Ernst, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 295-299.)
649	24190	U.S.A. ...	*Improved Technique for Dimpling Rivet Holes.* (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 157.)
650	24191	U.S.A. ...	*Degree Plates Improve Checking of Flange Angles.* (Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 159-161.)
651	24292	Germany ...	*Labour Saving Fabrication of Instrument Precision Parts (Digest).* (R. Reutebuch, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 461.)
			Plant Equipment.
652	23445	Germany ...	*Multiple Automatic Riveting Machine.* (F. Wilde. Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 439-440.)
653	23446	Germany ...	*Conical Screw Gears with Palloid Teeth.* (H. M. Hiersig, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 440-441.)
654	23463	Germany ...	*Standardised Band Saws with Roller Diameters of 400 mm.* (Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 402-403.)
655	23464	Germany ...	*Pedestal Milling Machine with Special Spindle Head for Working on Inaccessible Surfaces.* (Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 403.)
656	23489	Germany ...	*Simple Conveyors for Mass Production.* (H. Krippendorff, Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, pp. 535-538.)

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657	23490	Germany	...	*Horizontal and Vertical Milling Shaping Machine Tools.* (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, pp. 539-540.)
658	23514	Germany	...	*Research on the Design of Rolling Mill Frames (Digest).* (A. Geleji, Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, pp. 505-506.)
659	23515	Germany	...	*Rotable Table Milling Machine for Series and Mass Production.* (Z.V.D.I., Vol. 87, Nos. 31-32, 7/8/43, p. 506.)
660	23596	Germany	...	*A Spot Welding Machine, Using Half Wave Control (A.E.G. Communication).* (Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, p. 35.)
661	23600	Germany	...	*Device for Machining Control Levers on a Multi-Spindle Boring Machine.* (K. Frey and R. Svikovsky, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, p. 599.)
662	23724	Germany	...	*Special Purpose Grinding Machines.* (R. Westenberger, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 365-366.)
663	23725	Germany	...	*Special Measuring Equipment for use in the Construction of Interchangeable Bevel Gears with Straight Teeth.* (G. Apitz, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 366-367.)
664	23750	Germany	...	*Low Temperature Refrigerator for Laboratory Work (-70° C.).* (O. Reinartz, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 250.)
665	23752	Germany	...	*Single Flank Contour Testing Apparatus for Gear Wheels.* (K. Bürger, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 264-265.)
666	23753	Germany	...	*Rolling Pressure Determination by Electrical Strain Gauge.* (W. Redepenning, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, pp. 265-266.)
667	23754	Germany	...	*The Emergency Running Conditions of Bearing Metals as Fitted to Machines for High Precision Work.* (H. Lüpfert, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 266.)
668	23763	Germany	...	*Multi-Spindle Chuck Automatic Lathe for Large Workpieces.* (Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, pp. 666-667.)
669	23768	Germany	...	*Device for Flame-cutting Tubular Connections (Saddle Curve).* (H. Brückner, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 669.)
670	23769	Germany	...	*Special Jigs for Arc Welding.* (G. Lücking, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 669.)
671	23776	Germany	...	*Plastic Parts Bearings for Rolling Mills (Fabric Filler).* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, p. 56.)
672	23790	Germany	...	*Machine for Grinding Fillets on Test Pieces Undergoing Bending Fatigue.* (E. Bruder, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 224.)
673	23969	Germany	...	*Mathematical Basis for the Design of Gear Cutters which can be Manufactured on Gear Grinding Machines.* (B. W. Heise, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 291-295.)

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674	24192	U.S.A. ...	*Pinhole Lamp Cuts Welding Time* (*Enables Operator to Locate Exact Spot at which Weld is to be made*). (Aero Digest, Vol. 45, No. 1, 1/4/44, p. 161.)
675	24296	Germany ...	*New Types of Tools and Simple Special Purpose Equipment for Increasing Output* (*Milling Cutters, Boring Machines, etc.*). (Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 473.)
676	24298	Germany ...	*Three-Dimensional Milling Machine for the Fabrication of Plastic Models.* (G. Neri, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 474-475.)
677	24368	U.S.A. ...	*Stretch-Bend Unit Simplifies Metal Work* (*Goodyear's Roto-Stretcher*). (J. S. Nielson and C. B. Mitchell, Aviation, Vol. 43, No. 4, April, 1944, pp. 155, 153.)
678	24371	U.S.A. ...	*Bending and Crimping Devices* (*Northrop*). (Aviation, Vol. 43, No. 4, April, 1944, p. 168.)
679	24384	U.S.A. ...	*Northrop Improves Cable Tester.* (Aviation, Vol. 43, No. 4, April, 1944, p. 173.)
			Workers' Welfare.
680	23598	Germany ...	*Organic Silicates and Silicosis.* (L. Holzapfel, Z.V.D.I., Vol. 87, Nos. 37-38, Sept. 18th, 1943, pp. 605-606.)
681	23658	G.B.	*Back at Work after Disablement.* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, pp. 198-202, 212.)
682	23668	U.S.A. ...	*Atmospheric Pollution by Heavy Industry Special Remedial Action at Trail* (*British Columbia*). (E. W. Hewson, Industrial and Engineering Chemistry, Industrial Ed., Vol. 36, No. 3, 7/3/44, pp. 195-201.)
683	23766	Germany ...	*Eye Protection Device Fitted on Grinding Machines.* (Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 670.)
684	23788	Germany ...	*Protecting the Health of the Worker* (*Sand-Blasting*). (E. Sommerfeld, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, pp. 219-220.)
685	23795	Germany ...	*Mobile CO_2 Fire Extinguisher for Works A.R.P.* (*800 Kg CO_2 and 50 Gallons Foam*). (Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 230.)
686	23824	G.B.	*Rest Breaks for the Over-Worked.* (Production and Engineering Bulletin, Vol. 3, No. 16, March, 1944, pp. 97-100.)
687	23825	G.B.	*Modifying Existing Factory Heaters and Ventilators.* (Production and Engineering Bulletin, Vol. 3, No. 16, March, 1944, pp. 101-103.)
688	23836	G.B.	*Heating and Ventilation. Unusual Scheme in an Underground Factory.* (Electrical Review, Vol. 134, No. 3,466, 28/4/44, pp. 582-586.)
689	23855	U.S.A. ...	*"Indian" Aerating Cools Plant Air and Curbs Dust* (*Use of Evaporation of Water*). (K. Jenkins, Aviation, Vol. 43, No. 3, March, 1944, pp. 150, 312-316.)
			Scrap Salvage and Economy.
690	23444	Germany ...	*Reduction of Scrap in Punching and Drawing Metals.* (Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 438-439).

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691	23663	G.B.	*Recovery of Oil from Swarf.* (Production and Engineering Bulletin, Vol. 3, No. 18, May, 1944, pp. 221-226.)
692	23806	U.S.A./G.B. ...	*Shop-Made Tumbler Sieve Sorts* (*Salvaged*) *Rivets.* (H. C. Altemeir, Machinist, Vol. 88, No. 1, 15/4/44, p. 102.)
693	23882	U.S.A. ...	*Reclaiming of Wood's Metal* ('*Cerrobend*') *at Willow Run.* (F. M. Reck, Aero Digest, Vol. 44, No. 5, 1/3/44, p. 103.)
694	24297	Germany ...	*Supervising Fuel Consumption in Industry* (*How to Effect Economies*). (Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 473-474.)

TRANSPORT.

Motor Vehicles and Tanks.

695	23457	Germany ...	*Re-Designing of Heavy Vehicles from the Point of View of Light Construction.* (Th. Cleff, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 377-384.)
696	23458	Germany ...	*German "Tiger" Tank.* (Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 388.)
697	23779	Germany ...	*Reducing Noise of Gear Trains in Motor Vehicles.* (Z.V.D.I., Vol. 87, Nos. 3-4, 23/1/43, pp. 60-61.)
698	23785	Germany ...	*The Stressing of the Transmission Gear of Motor Vehicles under Different Operating Conditions.* (M. Ulrich, Z.V.D.I., Vol. 87, Nos. 15-16, 17/4/43, p. 209.)
699	23897	G.B.	*Motor Vehicles Propelled by Producer Gas* (*Abstract from Petrol Engr., Dec., 1943, 15(3)65*). (G. Egloff, Journal of the Institute of Petroleum, Vol. 30, No. 244, April, 1944, p. 164A.)
700	24294	Germany ...	*Caterpillar Drives for Road Construction Vehicles Employed on the Eastern Front.* (*Application to Runways, Building Sites, etc.*). (G. Garbotz, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, pp. 457-461.)
701	24308	Germany ...	*Branched Gear Circuits and Efficient Power Control in Motor Vehicles* (*Combination of Torque Converters and Mechanical Gears*). (H. Reichenbächer, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, pp. 705-714.)
702	24695	U.S.A. ...	*Army's New Armoured Car* (*M8*) (*Photo*). (Automotive and Aviation Industries, Vol. 90, No. 7, 1/4/44, p. 46.)

Locomotives, Automobiles, Tractors.

703	23468	Germany ...	*Electrically Operated Light Weight Train* (*Accumulator*). (W. Rodiger, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 404-405.)
704	23469	Germany ...	*Specification Sheets as an Aid to the Designer* (*Sample Sheet for Rail-Coach Bearings*). (Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 405-406.)
705	23610	G.B.	*Condensing Locomotives* (*Inst. of Mech. Eng. Papers*). (G. V. Lomonossoff and G. Lomonossoff, The Engineer, Vol. 177, No. 4,611, 26/5/44, pp. 408, 410-411.)

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706	23653	G.B.	*The Electrical Equipment of American Automobiles.* (R. M. Gritchfield and W. H. Grouse, J. Inst. Elect. Eng. (Part I General), Vol. 91, No. 40, April, 1944, pp. 158-161.)
707	23693	U.S.S.R. ...	*Development of Gas Producers for Agricultural Tractors in the Soviet Union.* (W. Butschke, Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, pp. 617-627.)
708	23704	Germany ...	*Prize Offered for Suggestions on the Rapid Clearance of Railway Lines (After Major Collisions, etc.).* (Z.V.D.I., Vol. 87, Nos. 39-40, 2/10/43, p. 639.)
709	24303	Germany ...	*Armoured Wood Brake Shoes for Train Waggons (Saving Iron).* (C. W. Schwab, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 478.)
710	24306	Switzerland ...	*Swiss Charcoal Gas Tractors (Digest).* (Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 479.)
			Trailers, Barges.
711	23460	U.S.A. ...	*Steering of Omnibus Trailer by means of a Tie-bar possessing only one articulated Joint in the Horizontal Plane.* (W. Krieger, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, pp. 389-390.)
712	23465	Germany ...	*Hay Harvesting Trailer Attached to Tractor and Operated by Driver.* (H. Zödler and E. Ponick, Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 385.)
713	23842	Germany ...	*Comparison of the Transport Efficiency of the new Danube Barges in various Tow Combinations.* (K. Helm, Schiff. und Werft (Incorporating Werft Reederei Hafen), Vol. 45-25, Nos. 5-6, March, 1944, pp. 47-58.)
714	23993	Germany ...	*Bus Trailer with Compressed Coal Gas (Abstract).* (H. Ruess, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 334.)
			Tyres, Accessories.
715	23473	U.S.A. ...	*Lessons Learned from Captured Automotive Material (Effects of Anti-Tank Guns, German and Japanese Vehicles, etc.).* (G. M. Barnes, S.A.E. Journal, Vol. 52, No. 3, March, 1944, pp. 17-25.)
716	24280	Germany ...	*The Limitations of Steel Spring Tyres and Redesign of Standard Tyres to Save Rubber.* (H. P. Zoeppritz, Z.V.D.I., Vol. 87, Nos. 45-46, Nov. 13th, 1943, pp. 723-725.)

WIRELESS AND ELECTRICITY.

Electricity (General).

717	23420	U.S.A. ...	*Paper Capacitors under Direct Voltages.* (M. Brotherton, Proc. Inst. of Rad. Eng., Vol. 32, No. 3, March, 1944, pp. 139-143.)
718	23425	U.S.A. ...	*A Note on Frequency Modulation Terminology.* (H. Stockman and G. Hok, Proc. I.R.E., Vol. 32, No. 3, March, 1944, pp. 181-183.)
719	23535	U.S.S.R. ...	*An Exponential Frequency Detector.* (V. M. Mühlstein, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 33-37.)

ITEM NO.	R.T.P REF.		TITLE AND JOURNAL.
720	23538	U.S.S.R. ...	*Derivation of the Relationships in Duplex Balance Lines.* (P. A. Naumoff, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 53-56.)
721	23539	U.S.S.R. ...	*Copper Oxide H.F. Rectifiers with Increased Stability.* (V. T. Renne and A. V. Bogdanon, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 67-70.)
722	23540	U.S.S.R. ...	*Optimum Diameter Ratio of Coaxial Cable Conductors.* (O. S. Rakovitch, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 71-76.)
723	23541	U.S.S.R. ...	*Improving the Quality of Valve Circuits by Combined Feedback.* (S. S. Kogan, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 57-61.)
724	23708	Germany ...	*Photoelectric D.C. Amplifiers.* (L. Merz, A.T.M., Z. 64-3, Dec., 1937, p. 167.)
725	24072	Germany ...	*Phase Displacement During the Calibration of Electric Power Meters.* (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, p. 674.)
726	24075	Germany ...	*Nomograph for Determining Final Working Temperature of Transformers and Motors.* (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, pp. 683-684.)
727	24076	Germany ...	*Resistance Measurements in Decimetre Wave Range.* (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, p. 685.)
728	24077	Germany ...	*High Frequency Wattmeter.* (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, pp. 686-687.)
729	24182	U.S.A. ...	*Effect of Altitude on Electrical Insulation (Part I).* (L. J. Berberich and others, Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 84-86, 207-210.)
730	24199	Switzerland ...	*Circuit Breaker Development in Switzerland.* (Engineering, Vol. 157, No. 5,090, June, 1944, p. 432.)
731	24307	Germany ...	*Production of X-Rays during the Operation of Mercury-Arc or Glow Cathode Rectifiers (Abstract).* (H. Glöde and J. V. Issendorff, Z.V.D.I., Vol. 87, Nos. 29-30, 24/7/43, p. 478.)
732	24322	U.S.S.R. ...	*Radiation Resistance in Lines with Standing and Travelling Waves (Abstract Summary).* (A. L. Drapkin, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 44-45.)
733	24477	U.S.A. ...	*Circuit for Generating Circular Traces of Different Frequencies on an Oscillograph.* (W. D. Hershberger, Proc. I.R.E., Vol. 32, No. 4, April, 1944, pp. 205-208.)

Radio and Telecommunication.

734	23407	G.B.	*Morse by Pulses (A Double Current System of Radio Telegraphy).* (R. C. Whitehead, Wireless World, Vol. 50, No. 4, April, 1944, pp. 102-104.)
735	23410	G.B.	*Radio Heating Equipment (Designing a Class 'C' Push-Pull R.F. Generator).* (L. L. Langton, Wireless World, Vol. 50, No. 4, April, 1944, pp. 111-114.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
736	23412	G.B.	...	*More Television Proposals. Definition Standards for our Post-War Service.* (W. A. Beatty and L. H. Bedford, Wireless World, Vol. 50, No. 4, April, 1944, pp. 116-118.)
737	23415	G.B.	...	*Blind Landing Beacons* (*Patent No.* 556899). (Wireless World, Vol. 50, No. 4, April, 1944, p. 127.)
738	23424	U.S.A.	...	*Radio Progress During* 1943 (*Transmitters and Antennas, Frequency Modulation, Electron cs, Television, Piezoelectricity, etc.*). (Proc. I.R.E., Vol. 32, No. 3, March, 1944, pp. 125-130.)
739	23471	Germany	...	*Piezoelectric Microphone of Small Dimensions* (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 25-26, 26/6/43, p. 406.)
740	23532	U.S.S.R.	...	*Oscillograph Control of Radio Signals.* (I. F. Agapoff, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 5-17.)
741	23533	U.S.S.R.	...	*Parasitic Amplitude Modulation in Short Wave Transmitters.* (G. S. Vassilieff, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 18-23.)
742	23536	U.S.S.R.	...	*Radio Aerial Heating as Protection Against Icing.* (G. V. Shuleykin, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 38-43.)
743	23537	U.S.S.R.	...	*Design of Mast Stays.* (G. A. Savitsky, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 46-52.)
744	23615	U.S.A.	...	*Audio and Measuring Facilities for the C.B.S. International Broadcast Stations.* (H. A. Chinn, Electrical Communication, Vol. 21, No. 3, 1943, pp. 175-179.)
745	24073	U.S.S.R.	...	*Broadcasting in U.S.S.R.* (*Organisation and Equipment*). (R. Machill, E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, pp. 675-682.)
746	24079	Germany	...	*Bad Weather Landing Systems for Aircraft* (*Digest*). (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, p. 688.)
747	24115	U.S.A.	...	*Radio Noise Filters Applied to Aircraft* (*Abstract*). (C. W. Frick and S. W. Zimmerman, Jour. Aero. Sci. (Review Section), Vol. 2, No. 11, Nov., 1943.)
748	24319	U.S.S.R.	...	*Phototelegraphic Recording by Lines of Varying Width.* (E. L. Orlovsky, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 27-32.)
749	24363	U.S.A.	...	*Approach to the Problem of Radio Precipitation Static. Part I—Theory.* (C. J. Breitwieser, Aviation, Vol. 43, No. 4, April, 1944, pp. 142-144, 243-249.)
750	24478	U.S.A.	...	*Low Frequency Quartz-Crystal Cuts having Low Temperature Coefficients (use in Radio).* (W. P. Mason and R. A. Sykes, Proc. I.R.E., No. 4, April, 1944, pp. 208-215.)
751	24480	U.S.A.	...	*Note on the Bearing Error and Sensitivity of a Loop Antenna in an Abnormally Polarised Field.* (F. S. Howes and F. M. Wood, Proc. I.R.E., Vol. 32, No. 4, April, 1944, p. 231.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
752	24481	U.S.A. ...	*Radio Direction Finders* (*Book Review*). (D. S. Bond, Proc. I.R.E., Vol. 32, No. 4, April, 1944, p. 243.)

Electronics.

753	23617	U.S.A. ...	*The Measured Characteristics of some Electrostatic Electron Lenses.* (K. Spangenberg, Electrical Communication, Vol. 21, No. 3, 1943, pp. 194-204.)
754	23413	G.B.	*Cathode Ray Oscillograph in Industry* (*Book Review*). (W. Wilson, Wireless World, Vol. 50, No. 4, April, 1944, p. 124.)
755	23419	U.S.A. ...	*Generation of High Power Oscillations with a Magnetron in the Centimeter Band* (*Translation "Journal of Technical Physics" Russian*). (N. F. Alekseev and D. D. Malairov, Proc. Inst. of Rad. Eng., Vol. 32, No. 3, March, 1944, pp. 136-138.)
756	23423	Germany ...	*Modern Multigrid Electron Tubes.* (*Review of German Book*). (H. J. O. Strutt, Proc. I.R.E., Vol. 32, No. 3, March, 1944, p. 183.)
757	23838	G.B.	*Voltage Stabiliser. New Electronic Regulator with Unusual Features* (*For 4kVA, 50 c/s three phase Alternator driven from 230 D.C. Mains*). (G. N. Patchett, Electrical Review, Vol. 134, No. 3,466, 28/4/44, pp. 602-604.)
758	24139	G.B.	*The 'Etherscope'* (*Enables Signals from all Stations in a given Waveband to be viewed simultaneously on a Cathode Ray Tube*). (D. G. Hull, Electronic Engineering, Vol. 16, No. 195, May, 1944, pp. 497-499.)
759	24332	G.B.	*Cathode-Ray Tube Traces. A Series to Illustrate Cathode Ray Tube Technique. I.—Lissajous Figures.* (H. Moss, Electronic Engineering, Vol. 17, No. 196, June, 1944, pp. 21-24.)
760	24334	G.B.	*Electronic Control of Tinning* (*Abstract from Amer. Inst. Mech. Eng.*). (Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 30.)
761	24339	G.B.	*Electronic Circuit for H.F. Welding* (*Abstract from Electronics, Dec., 1943, p. 168*). (Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 40.)
762	24340	Canada ...	*Applied Electron Microscopy* (*Abstract from Canadian J. Res., Nov., 1943, p. 89*). (Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 40.)
763	24341	G.B.	*Electronic Devices in Textiles* (*Abstract from Textile World, Feb., 1944, p. 101*). (Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 40.)
764	24343	G.B.	*The Application of Multiplier Phototubes to Quantitative Spectrochemical Analysis* (*Abstract from Jour. Opt. Soc. America, Jan., 1944, p. 6*). (Electronic Engineering, Vol. 17, No. 196, June, 1944, p. 40.)
765	24479	U.S.A. ...	*Practical Results from Theoretical Studies of Magnetrons.* (L. Brillouin, Proc. I.R.E., Vol. 32, No. 4, April, 1944, pp. 216-230.)

SOUND, LIGHT AND HEAT.

Heat Transfer.

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
766	23472	Germany	...	*Measuring Temperatures on Rotating Machine Parts.* (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 25-25, 26/6/43, p. 406.)
767	23567	U.S.A.	...	*Economic Selection of Heat Exchanger Sizes.* (H. T. Broeck, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 64-67.)
768	23721	Germany	...	*Progress in Thermodynamic Research* (*V.D.I. Symposium*) (*Review Papers on Heat Transfer Problems, etc.*). (Various Authors, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 355-358.)
769	23731	Germany	...	*Determining Colling Rate by Electrical Differentiation of the Temperature Curve* (*with application to Quenching* (*Abstract*). (Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 374.)
770	23737	Germany	...	*The Concept of the Heat Transfer Coefficient.* (O. Walger, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 355.)
771	23739	Germany	...	*Heat Transfer Media Suitable for High Temperature Operation.* (J. Spangler, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 356.)
772	23741	Germany	...	*Heat Transfer over the Entry Section in Pipe Flow.* (H. Hahnemann, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 357.)
773	23742	Germany	...	*The Flow and Thermal Problems in Long Road Tunnels* (*Swiss Alps*). (L. Richter, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, pp. 357-358.)
774	23756	Germany	...	*Heat Transfer in Gases During Rapid Variations in Pressure.* (H. Pfriem, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 368.)
775	23758	Germany	...	*Equivalent Diameter in Heat Transfer Problems* (*Analogy between Material Flux and Heat Flux*). (B. Koch, Z.V.D.I., Vol. 87, Nos. 17-18, 1/5/43, p. 269.)
776	23876	Germany	...	*Methods of Calculating the Surface Area of Heat Exchanges* (*with Special Reference to Power Stations*). (J. Jaroschek, Z.V.D.I., Vol. 87, Nos. 16-15, 17/4/43, pp. 210-213.)
777	23812	G.B. ...	...	*An Outline District-Heating Scheme for London.* (A. E. Margolis, Engineering, Vol. 157, No. 4,089, 25/5/44, pp. 401-404.)
778	23973	Germany	...	*The Drying Process* (*Fundamental Differential Equation of Exchange of Matter and Heat*). (Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, pp. 299-300).
779	24196	G.B. ...	...	*Flow of Heat through Granular Materials.* (A. L. Waddams, Chemistry and Industry, No. 23, 3/6/44. pp. 206-210.)

ITEM NO	R.T.P. REF.		TITLE AND JOURNAL.
			Lighting Systems.
780	23654	G.B.	*Emergency Lighting Systems and Their Applications with Particular Reference to Battery Equipments.* (S. H. Chase, The Journal of the I.E.E. (Power Engineering), Part II., Vol. 91, No. 20, April, 1944, pp. 132-146.)
781	23655	G.B.	*Fluorimetry. The Estimation of the Concentration of Fluorescent Pigments from their Fluorescence Intensity.* (P. Ellinger, Journal of the Society of Chemical Industry, Vol. 63, No. 4, April, 1944, pp. 115-121.)
782	23090	G.B.	*Experiments on the Candle Power and Brightness of the Positive Crater of the Electric Arc, using Solid Carbons and Graphite Electrodes.* (J. T. MacGregor Morris, Journal of the I.R.E., Part I. (General), Vol. 91, No. 41, May, 1944, pp. 185-197.)
783	24483	U.S.A. ...	*Electron-Optics* (*Translation Published* 1944 *by American Photographic Publishing Co., 353, Newbury St., Boston, Mass.*). (P. Hatschek, Proc. I.R.E., Vol. 32, No. 4, April, 1944, p. 244.)
			Sound Recording, etc.
784	23411	G.B.	*Direct Recording of Sound on Film* (*A Cheap Method*) (Wireless World, Vol. 50, No. 4, April, 1944, p. 115.)
785	24078	Germany ...	*Disintegration of Molecular Chains by Supersonic Sound* (*Digest*). (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, pp. 687-688.)
786	24329	G.B.	*Maintenance of Quality in Film-Recorded Sound. I.—Recording and Processing.* (R. H. Cricks, Electronic Engineering, Vol. 17, No. 196, June, 1944, pp. 12-15.)
			PHOTOGRAPHY.
787	23426	U.S.A. ...	*Standards on Facsimile—Temporary Test Standards* (1943). (*Transmission of Radio Photographs*). (Publications of the I.R.E., 1944, 8 pp.)
788	23504	U.S.A. ...	*Photoelectric Photography—An Analysis of Errors at High and at Low Absorption.* (R. H. Hamilton, Industrial and Engineering Chemistry (Analytical Edition), Vol. 16, No. 2, 17/2/44, pp. 123-126.)
789	23534	U.S.S.R. ...	*Improvements in the Phototelegraphic Recording of Semitones by Scanning Lines of Variable Width.* (E. L. Orlovsky, Elektrosvyaz (Communications Engineering), Vol. 9, No. 2, Feb., 1941, pp. 24-32.)
790	23563	U.S.A. ...	*Study of High Explosives by High-Speed Photography.* (R. W. Cairns, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 79-85.)
791	23625	G.B.	*Camera Recorder* (*Gives Readings of Acceleration, Control Movements and Stick Forces*). (Flight, Vol. 45, No. 1,847, 18/5/44, pp. 532-533.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
792	23767	Germany	...	*Honeycomb Condenser for the Projection of Coloured Films (Digest).* (H. Schering, Z.V.D.I., Vol. 87, Nos. 41-42, 16/10/43, p. 668.)
793	24330	G.B. ...	...	*The "Kodatron" Speed Lamp (Flash Photography).* (G. A. Jones, Electronic Engineering, Vol. 17, No. 196, June, 1944, pp. 16-18.)

METEOROLOGY.

794	23709	U.S.S.R.	...	*The Influence of the Troposphere on the Propagation of Ultra-Short Waves.* (B. A. Wedensky, Bull. Acad. Sci., Physical Series, Vol. 7, No. 4, 1943, p. 93.)
795	23710	U.S.S.R.	...	*The Influence of Polarized and Paramagnetic Molecules on the Absorption and Refraction of Radio Waves in the Atmosphere.* (V. Ginsburg, Bull. Acad. Sci., Physical Series, Vol. 7, No. 4, 1943, p. 96.)
796	23711	U.S.S.R.	...	*The Propagation of Radio Waves over a Spherical Ground in an Inhomogeneous Atmosphere.* (G. A. Grunberg, Bull. Acad. Sci., Physical Series, Vol. 7, No. 4, 1943, p. 99.)
797	23712	U.S.S.R.	...	*The Reflection of Radio Impulses from the Ionosphere.* (V. L. Ginzburg, Bull. Acad. Sci., Physical Series, Vol. 7, No. 4, 1943, p. 114.)
798	23713	U.S.S.R.	...	*Some Physical Aspects of Ionospheric and Geomagnetic Disturbance and Allied Astrophysical Problems.* (M. N. Gnevyshev, Bull. Acad. Sci., Physical Series, Vol. 7, No. 4, 1943, p. 137.)
799	23870	U.S.A.	...	*Graphic Solutions to Celestial Navigation.* (J. B. Rea, Aviation, Vol. 43, No. 3, March, 1944, pp. 176-177, 339.)
800	23915	G.B. ...	...	*Carbon Dioxide Content of Atmospheric Air.* (E. Gluckauf, Nature, Vol. 153, No. 3,890, 20/5/44, p. 621.)
801	24074	Germany	...	*Electric Storms during 1936/1937 (Swiss Records).* (E.T.Z., Vol. 64, Nos. 51-52, 30/12/43, p. 682.)
802	24090	U.S.A.	...	*On the Mechanism of Thunderstorm Downdrafts (Abstract).* (Jour. Aer. Sci. (Review Section), Vol. 2, No. 7, July, 1943, pp. 64-65.)
803	24091	U.S.A.	...	*Elements of Atmospheric Humidity.* (J. C. Gomez, Jour. Aer. Sci. (Review Section), Vol. 2, No. 7, July, 1943, p. 67.)
803A	24488	U.S.A.	...	*Bottled Miniature Clouds to Test the Effectiveness of Insulation for Aircraft-Power Systems.* (Journal of the Aeronautical Sciences (Review Section), Vol. 3, No. 4, April, 1944, p. 167.)

PHYSIOLOGY AND AVIATION MEDICINE.

804	23439	Germany	...	*Mixing Plants for Liquids (for Water Purification).* (A. Rau, Z.V.D.I., Vol. 87, Nos. 27-28, 10/7/43, pp. 419-421.)
805	23873	U.S.A.	...	*Causes of Injury in Lightplane Accidents.* (H. de Haven, Aero Digest, Vol. 44, No. 5, 1/3/44, pp. 51-55, 206.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
806	23962	G.B.	*Metal in Human Fractures—Use of Non-Toxic, Non-Magnetic, and Stainless Non-Ferrous Alloy (Vitallium).* (N. Vere-Hodge, Metal Industry, Vol. 64, No. 22, 2/6/44, pp. 342-343.)
807	24001	U.S.A. ...	*Susceptibility of Airplane Pilots to Hyperventilation.* (Civil Aeron. Journal, Vol. 5, No. 4, 15/4/44, p. 45.)
808	24010	U.S.A. ...	*Types of Internal Injuries of Personnel Involved in Aircraft Accidents.* (G. M. Mass, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 77-84, 42.)
809	24011	U.S.A. ...	*Observations on the Old and Strange War in the South Pacific (Factors of Fatigue, Pilot Selection, etc.).* (M. M. Kalez, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 85-92.)
810	24012	U.S.A. ...	*Air Evacuation of Patients.* (R. L. Meiling, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 93-97.)
811	24013	U.S.A. ...	*Effects of Administered Pregnenolone on Fatiguing Psychomotor Performance.* (G. Pincus and H. Hoagland, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 98-115, 135.)
812	24014	U.S.A. ...	*The Selection of Pilots by Means of Psychomotor Tests.* (A. W. Melton, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 116-123.)
813	24015	U.S.A. ...	*Developments in Aviation Medicine in the Field.* (J. C. Adams, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 116-123.)
814	24016	U.S.A. ...	*Medical Service with the Army Air Forces.* (W. S. Jensen, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 127-130, 140.)
815	24017	U.S.A. ...	*Prediction of Flight Training Performance by Biographical Data.* (J. G. Jenkins, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 131-135.)
816	24018	U.S.A. ...	*A Study in Cockpit Illumination (Medical Aspects).* (P. Seitz and J. Orlansky, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 136-137.)
817	24019	U.S.A. ...	*A Preliminary Report on the Occurrence of Muscular Cramps in Flyers in the E.T.O.* (W. G. Neckman, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 138-140.)
818	24020	U.S.A. ...	*Effect of Pavatrine During Anoxia and at High Altitude.* (W. M. Davidson, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, p. 141.)
819	24021	U.S.A. ...	*Parachute Jump from 32,000 ft. without Oxygen (Report of a Case).* (H. Kirschbaum, The Journal of Aviation Medicine, Vol. 15, No. 2, April, 1944, pp. 142-143.)
820	24092	U.S.A. ...	*Physiology in Aviation (Book Review).* (Jour. Aer. Sci. (Review Section), Vol. 2, No. 7, July, 1943, p. 105.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
821	24160	U.S.A.	...	*Biomechanics—A New Approach to Airplane Safety.* (C. M. Gratz, Mechanical Engineering, Vol. 66, No. 5, May, 1944, pp. 313-314.)
822	24168	U.S.A.	...	*Medical Aspects of Aviation* (*Book Review*). (E. Jokl, Mechanical Engineering, Vol. 66, No. 5, May, 1944, p. 337.)
823	24227	U.S.A.	...	*Speeding Pencillin* (*Accomplished by High-Vacuum Dehydrator*). (Scientific American, Vol. 10, No. 1, January, 1944, p. 9.)
824	24333	G.B.	...	*A Chronaxie Meter and Electronic Stimulator* (*For Electro Medicine*). (B. Denny, Electronic Engineering, Vol. 17, No. 196, June, 1944, pp. 26-30.)

MATHEMATICS AND PHYSICS.

825	23491	Germany	...	*Monogram for the Determination of the Edge Angle of Pyramidal Containers.* (Z.V.D.I., Vol. 87, Nos. 33-34, 21/8/43, p. 540.)
826	23561	U.S.A.	...	*Tie-Lines in Quaternary Liquid Systems* (*A Method of Representing Equilibria in Quaternary Liquid Systems by Means of Plane Graphs*). (J. C. Smith, Industrial and Engineering Chemistry (Industrial Edition), Vol. 36, No. 1, 14/1/44, pp. 68-71.)
827	23614	U.S.A.	...	*Physics and the Static Characteristics of Hard Vacuum Valves* (*Presented before the Institute of Physics, April 6th*, 1943). (J. H. Fremlin, Electrical Communication, Vol. 21, No. 3, 1943, pp. 167-173.)
828	23736	Germany	...	*Analytical Calculation of Dissociation Equilibria.* (A. Busemann, Z.V.D.I., Vol. 87, Nos. 23-24, 12/6/43, p. 355.)
829	23990	Germany	...	*Elimination of Friction by Vibration of the Supportin Surface.* (G. Heinrich, Z.V.D.I., Vol. 87, Nos. 19-20, 15/4/43, p. 332.)
830	24037	U.S.A.	...	*Impedance Concept in Wave Guides.* (S. A. Schelkunoff, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 1-15.)
831	24038	U.S.A.	...	*The Distortion of the Boussinesq Field Due to a Circular Hole.* (A. Barjansky, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 16-30.)
832	24039	U.S.A.	...	*The Thermal Stress and Body Force Problems of the Infinite Orthotropic Solid.* (G. F. Carrier, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 31-36.)
833	24043	U.S.A.	...	*Some Present Nonlinear Problems of the Electrical and Aeronautical Industries.* (E. G. Keller, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 72-86.)
834	24044	U.S.A.	...	*A Geometrical Interpretation of the Relaxation Method.* (J. L. Synge, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, pp. 87-89.)

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835	24045	U.S.A. ...	*Proposed Symbols for the Modified Cosine and Exponential Integrals.* (S. A. Schelkunoff, Quarterly of Applied Mathematics, Vol. 2, No. 1, April, 1944, p. 90.)
836	24185	U.S.A. ...	*Calculating Liquid Pressure Drop in Hydraulic Tubing.* (J. Jerome, Aero Digest, Vol. 45, No. 1, 1/4/44, pp. 100-104, 128.)
837	24269	U.S.A. ...	*Mathematical Tables* (*Reciprocals, Bessel Functions, Circular and Hyperbolic Tangets and Cotangets.*) (*Book Review*). (National Bureau of Standards, Industrial Engineering Chemistry (News Edition), Vol. 22, No. 8, 25/4/44, p. 660.)
838	24313	G.B.	*Solutions of Problems in Viscous Flow* (*Mathematical Theory*). (G. Green, Philosophical Magazine, Vol. 35, No. 243, April, 1944, pp. 250-262.)
839	24314	G.B.	*Coefficients for Numerical Integration with Central Differences.* (H. E. Salzer, Philosophical Magazine, Vol. 35, No. 243, April, 1944, pp. 262-264.)

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Abstracts from the Scientific and Technical Press

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Requests for further information or translations should be addressed to R.T.P.3, Ministry of Aircraft Production, giving item and reference numbers.

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92	26552	U.S.A. ...	*Velocity in a Two-Dimensional Laplacian Potential Flow.* (H. M. Munk, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 88-90.)
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94	26575	U.S.A. ...	*Nature and Measure of Agitation (Some Reference to Turbulence).* (A. W. Hixson, Ind. & Eng. Chem. (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 488-496.)
95	26821	U.S.A. ...	*Aerodynamic Development of Axial Flow Fans (Abstract.* (T. H. Trattor, Jour. Aero. Sec. (Review Section), Vol. 3, No. 6, June, 1944, p. 59,.)
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121	26187	Switzerland ...	*Pilatus SB-5 Commercial Transport Project* (*Gross Weight* 11,000 *lb.*). (Inter. Avia. Nos. 920-921, 20/5/44, II. p. 9.)
122	26195	U.S.A. ...	*Consolidated C-99 400 Passengers Project* (6 *Engines*). (Inter. Avia. No. 920-921, 20/5/44, p. 12.)
123	26200	U.S.A. ...	*Budd RB-125 "Conestoga" Transport* (*Stainless Steel*). (Inter. Avia. Nos. 920-921, 20/5/44, p. 13.)
124	26257	U.S.A. ...	*Remember the 'Nancies'?* (*First Airplane to Cross Atlantic — N.O.—4*) (*Historical*). (J. B. Goodman, U. S. Air Services, Vol. 29, No. 5, May, 1944, pp. 12-14, 42.)
			General Design and Construction.
125	20550	U.S.A. ...	*Table of Non-Ferrous Alloys for Airframes and Engines.* (J. B. Johnson, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 82-83.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
126	25842	G.B.	*Aspects of the Design and Production of Airframes with Particular Reference to Their Co-ordination and to the Reduction of the Development Period.* (E. Mensforth, W. N. W. Pettor, Jour. of the Roy. Aero. Sci., Vol. 48, No. 403, July, 1944, p. 210.)
127	25844	G.B.	*Types of Aeroplanes* (*Land Plane, Seaplane, Flying Boat, Correspondence*). (Oswald Short, Jour of the Roy. Aero. Sci., Vol. 48, No. 403, July, 1944, pp. 264-265.)
128	25961	U.S.A. ...	*The "Forgotten Miracle" of the All-Electric Airplane.* (A. A. Arnhym, Aero Digest, Vol. 45, No. 3, 1 5 44, pp. 74-75, 227-234.)
129	25966	U.S.A. ...	*Magnesium Alloys in Plane Construction.* (D. L. Moseley, Aero Digest, Vol. 45, No. 3, 1/5/44, p. 90.)
130	25990	U.S.A. ...	*Standardisation of Steel Tubing Sizes for Aircraft.* (J. W. Offutt and D. T. Marvel, Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 92, 218.)
131	25992	U.S.A. ...	*Plastic Airplane Parts Stand Test of Time.* (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 98-100, 216-218.)
132	25995	U.S.A. ...	*Design of Aircraft Fuel Systems* (*Part 3*). (C. S. Brandt, Aero Digest, Vol. 45, No. 2, 1 5 44, pp. 116-135.)
133	26092	G.B.	*Aircraft Suspension Systems* (*Notes on Articulated and Telescoping—Tube Types.* (F. E. Burger, Flight, Vol. 46, No. 1.857, July, 27, 1944, pp. 99-100.)
134	26337	U.S.A. ...	*A Ballot for the Flying Boat* (*Flying Boat Compared with the Land Plane.*) (C. H. Schildhauer, Aviation, Vol. 43, No. 5, May, 1944, pp. 119-121, 263.)
135	26349	U.S.A. ...	*Intercooling Problems in Airplane Design.* (H. B. Dickinson, Aviation, Vol. 43, No. 5, May, 1944, pp. 192, 278-297.)
136	26412	U.S.A. ...	*Designing for Maintenance* (*Further Suggestions*). (E. J. Foley, American Aviation, Vol. 8, No. 1, 1/6/44, pp. 72, 80.)
137	26424	G.B.	*Aluminium Alloy Sheet and Strip in Aircraft.* (E. G. West, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 200-201, 230.)
138	26511	U.S.A. ...	*Air Cargo Planes from the Engineering Viewpoint.* (J. B. Kendrick, S.A.E. Journal, Vol. 52, No. 4, April, 1944, pp. 159-161, 168.)
139	26560	U.S.A. ...	*Electrical Bonding in Airplanes.* (W. H. Alata, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 120-138.)

Performance and Flight Characteristics.

140	25813	G.B.	*Estimation of Aircraft Ceilings.* (J. F. Foss, Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 186-187.)
141	25976	U.S.A. ...	100 *m.p.h. More Speed Due from Jet Plane.* (Aero Digest, Vol. 45, No. 3, 1/5/44, p. 134.)
142	25979	U.S.A. ...	*Constellations Cross-Continent Record Flight.* (Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 185, 187.)
143	25989	U.S.A. ...	*Effect of Overload and Unbalance on Long Range Aircraft Operation.* (J. B. Childers, Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 88-91.)

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144	26136	G.B.	...	*The Errant Centre of Gravity.* (W. E. Hick, Aeronautics, Vol. 11, No. 1, August, 1944, pp. 40-43.)
145	26341	U.S.A.	...	*Methods for Determining Aerofoil Pressure Distribution.* (M. A. Maller, Aviation, Vol. 43, No. 5, May, 1944, pp. 141-144, 273-277.)
146	26344	U.S.A.	...	*Graphic Simplifications in Computing True Airspeed.* (R. G. Smith, Aviation, Vol. 43, No. 5, May, 1944, pp. 143-145, 273.)
147	26357	U.S.A.	...	*The Determination of Fuselage Moments.* (C. E. Pappas, J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 183-190.)
148	26358	U.S.A.	...	*Long Range Cruising Analysis and Control.* (F. B. Lary, J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 191-197, 221.)
149	26361	U.S.A.	...	*Payload Versus Operating Speeds in Air Transport Operations.* (J. G. Borger, J.A.S.E. Vol. 52, No. 5, May, 1944, pp. 207-212.)
150	26506	U.S.A.	...	*Use of Generalized Co-ordinates in Flutter Analysis.* (S. J. Loring, S.A.E. Journal, Vol. 52, No. 4, April, 1944, pp. 113-132.)
151	26559	U.S.A.	...	*Calculation of the Turning Radius of an Aircraft.* (H. N. Rubin, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 116-117.)
				Airscrews.
152	25816	G.B.	...	*Screws and Airscrews. A Mechanical Conception of Aerodynamics.* (T. H. Day, Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 191-194.)
153	25818	G.B.	...	*Engine Airscrew Vibration* (*Reprint of Portion of Address given to Inst. of Mech. Eng. June 2nd*, 1944). (J. Morris, Aircraft Engineering, Vol. 16, No. 185, July, 1944, p. 202.)
154	25960	U.S.A.	...	*The "Aeromatic" Propeller* (*for Light Planes*) (*Part I.* S. H. Fedan, Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 70-73, 126-128.)
155	20988	Germany	...	*German V.D.M. Electric Propeller* (*Detail Drawings*). (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 86-77.)
				Accessories, Equipment.
156	25977	U.S.A.	...	*Electric Contract Heating for Aircraft.* (Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 155-157.)
157	25991	U.S.A.	...	*Electrical Systems for Large Aircraft* (*Part II*). (W. K. Boice and L. G. Levoy, Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 94-96, 220-232.)
158	26027	U.S.A.	...	*Aircraft Heating System of Three Types.* (W. W. Reasor, Autom. Ind., Vol. 90, No. 12, 15/6/44, pp. 32-35, 94-98.)
159	26032	U.S.A.	...	*Droppable Sponson Fuel Tank Aids Plane Take-off.* (Autom. Ind., Vol. 90, No. 12, 15/6/44, pp. 105-106.)
160	26145	G.B.	...	*Gauge Flap Development.* (Aeronautics, Vol. 11, No. 1, August, 1944, p. 56.)
161	26146	G.B.	...	*Sideslip Indicator* (*Philip & Powis Aircraft Patent*). (Aeronautics, Vol. 11, No. 1, August, 1944, pp. 56-57.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
162	26147	G.B.	*Thermostatic Control in Air-Cooling (Bristol Patent).* (Aeronautics, Vol. 11, No. 1, August, 1944, p. 57.)
163	26183	U.S.A. ...	*Fumigation and Sanitation in Air Transportation—Part I.* (G. K. Brower, Air Transport, Vol. 2, No. 7, July, 1944, pp. 105-111.)
164	26347	U.S.A. ...	*Equivalent Charts for Aircraft Plumbing Fittings (American Airlines Attempt at Standardisation).* (Aviation, Vol. 43, No. 5, May, 1944, pp. 165-184.)
165	26554	U.S.A. ...	*Control Surface Balance Weights.* (E. S. Fife, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 96-98, 130.)
			Airfields, Runways.
166	25888	G.B.	*The Two-Runway Airport System.* (Aeroplane, Vol. 67, No. 1,730, 21/7/44, p. 76.)
167	25906	G.B.	*Recent Developments in Connexion with the Application of Soil Stabilisation in Practice.* (J. S. Jackson, J. of Soc. of Chem. Ind. (Monthly), Vol. 63, No. 6, June, 1944, pp. 161-165.)
168	25959	U.S.A. ...	*Hangar Roof Runway Airport.* (L. S. Peck Design), (Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 56-58.)
169	25997	U.S.A. ...	*Portable Fire Kits for Aerodromes.* (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 143-145.)
170	26001	U.S.A. ...	*C. A. A. Plans 6,000 Airfields for Entire Country.* (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 173-179.)
171	26013	U.S.A. ...	*Future Highway and Track Design.* (B. B. Bachman, Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 28-29, 62-64.)
172	26063	U.S.A. ...	*Chemical Treatment Makes Soil Waterproof (for Airways, etc.).* (Stabinol) (Automotive Industries, Vol. 90, No. 2, 1st May, 1944, pp. 72-74.)
173	26094	G.B.	*Airfield Roads and Runways (Somerfeld Flexboards and Track).* (Flight, Vol. 46, No. 1,857, July, 27, 1944, pp. 101-102.)
174	26409	U.S.A. ...	*National Aeronautic Association to Co-ordinate Airport Planning.* (W. Thompson, American Aviation, Vol. 8, No. 1, 1/6/44, p. 26.)
			Testing, De-Icing, Maintenance, etc.
175	25974	U.S.A. ...	*Curtiss—Wright Propeller Icing Tests.* (Aero Digest, Vol. 45, No. 3, 1/5/44, p. 118.)
176	25987	U.S.A. ...	*Coping with Airplane—Crash Fires.* (Aero Digest, Vol. 45, No. 2, 1/5/44, p. 84.)
177	26129	G.B.	*A Climatic Test Chamber for Testing Electrical Aircraft Equipment.* (R. H. Burkett & H. K. Henisch, Journal of Sci. Instruments, Vol. 21, No. 6, 24/7/44, pp. 106-107.)
178	26178	U.S.A. ...	*Pan-American Propeller Overhaul Shop at Miami.* (W. S. Burling, Air Transport, Vol. 2, No. 7, July, 1944, pp. 40-49.)
179	26179	U.S.A. ...	*Cleaning Time Cut in Half for Hydraulic Fluid.* (Air Transport, Vol. 2, No. 7, July, 1944, p. 55.)
180	26267	U.S.A. ...	*New Machine Tests Parachutes Indoors.* (Air Services, E. H. Forbes, Vol. 29, No. 3, March, 1944, p. 18.)

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181	26320	U.S.A. ...	*Highway Ice Control—Methods, Materials and Equipment (with Particular Reference to the Use of Calcium Chloride) (Brochure).* (Miscellaneous Publications, p. 28.)
182	26388	G.B.	*Bibliography of Published Information on Aircraft Fire-Fighting (May, 1944).* (R.T.P.3. Bibliography, No. 105, Issued by the Ministry of Aircraft Production.)
183	26561	U.S.A. ...	*Fire Prevention in Aircraft Plants.* (E. W. Williams, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 122-123, 140.)

ENGINES AND ACCCESSORIES.

Named Engine Types.

184	25815	G.B.	*The Mercedes Benz DB605 A.1. Engine* (Translated by L. Mote from Air Fleet Technical News, No. 3, 1943, pp. 37-39.) (Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 190-202.)
185	25835	G.B.	*Geared Diesel Machinery (Abstract from Inst. Marine Engineers Meeting, June 13th and 14th, 1944).* (D. Bruce, Engineer, Vol. 178, No. 4619 21/7/44, pp. 54-56.)
186	25898	G.B.	*Diesel Electric Machinery.* (D. E. Jewitt, The Engineer, Vol. 178, No. 4,620, 28th July, 1944, pp. 71-73.)
187	25938	U.S.A. ...	*Progress in Gas-Burning Diesel Engines and Plants.* (R. Cramer, Mechanical Engineering, pp. 369-372.)
188	26026	U.S.A. ...	*Progress in Diesel Field (S.A.E. Chicago Symposium).* (Autom. Ind. Vol. 90, No. 12, 15/6/44, 30-31, 60-64, 69.)
189	26241	G.B.	*Merlin 32 Engine Fitted to Fairey Barracuda.* (Inter. Avia. Nos. 918-919, 11/5/44, pp. 11-12.)
190	26359	U.S.A. ...	*Diesel Engines in War Time Navy.* (L. F. Small, J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 198-201, 224.)
191	26408	U.S.A. ...	3,000 *h.p. Engine—V-3420 (24-Cylinder Liquid Cooled Engine).* (American Aviation, Vol. 8, No. 1, 1/6/44, p. 21.)
192	26519	G.B.	*Diesel Engines—Recent Attempts to Reduce the Power-Weight Ratio.* (P. H. Schweitzer, Automobile Engineer, Vol. 34, No. 452, August, 1944, pp. 331-334.)
193	26562	U.S.A. ...	*The New Allison 3,000 h.p. Engine.* (Aero Digest, Vol. 45, No. 6, 15/6/44, p. 124.)

Design and Installation.

194	25814	G.B.	*The Utilisation of Exhaust Thrust (Separate Exhaust Pipes Compared with a Single Manifold).* Translated by L. Mote F.I.L. from Air Fleet Technical News, Nos. 4-5, 1943, pp. 28-31. (N. Ya. Litvinov, Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 188-189.)
195	26038	U.S.A. ...	*Production Requirements and Engine Design (Heavy Oil Engines) (Digest).* (R. E. Strub, J. Amer. Soc. Naval Engineers, May, 1944, p. 287.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
196	26089	G.B.	...	*Engine Mountings* (*General Survey of Types Employed on Military Aircraft*) (*Part I*). (M. F. Allward, Flight, Vol. 46, No. 1,857, July 27, 1944, pp. 91-93.)
197	26360	U.S.A.	...	*Aircraft Engine Inlet and Exhaust Porting*. (V. C. Young, J.A.S.E. Vol. 52, No. 5, May, 1944, pp. 202-206.)
198	26486	G.B.	...	*Civil Aircraft Engines* (*Liquid or Air Cooled; Claims of the Radial, etc.*). (C. H. Potts, Flight, Vol. 46, No. 1,859, 10/8/44, pp. 157-159.)
199	26598	G.B.	...	*Supercharged Ignition System* (*New Patent*). (Aeronautics, Vol. 10, No. 6, July, 1944, p. 58.)
				Accessories.
200	25823	G.B.	...	*A New Flexible Bearing. A Compensating Device for use in Undercarriages Control Circuits and Rotating Machinery*. (F. F. Burger, Aircraft Engineering, Vol. 16, No. 185, July, 1944, p. 211.)
201	25930	U.S.S.R.	...	*Bearings—Properties of Aluminium-Iron-Chromium Alloys* (*from the Russian*). (T. L. Mints & G. V. Akimov, Metal Industry, Vol. 65, No. 4, 28/7/44, p. 60.)
202	26019	U.S.A.	...	*Three Types of Lambert Disc Brake*. (Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 58-60.)
203	26030	U.S.A.	...	*Self-Lubricating Powdered Aluminium Bearings*. (Autom. Ind. Vol. 90, No. 12, 15/6/44, pp. 78-80.)
204	26363	U.S.A.	...	*Some Physical and Wear Characteristics of Porous-Chromium Plated Rings*. (T. C. Jarrett, J.A.S.E. Vol. 52, No. 5, May, 1944, pp. 222-224.)
205	26515	G.B.	...	*Engine Bearings—A summary of the Requirements Conducive to Long Life*. (J. Bate, Automobile Engineer, Vol. 34, No. 452, August, 1944, p. 313.)
206	26597	G.B.	...	*Fan Assisted Cooling System* (*New Patent*). (Aeronautics, Vol. 10, No. 6, July, 1944, p. 58.)
				Performance and Testing.
207	25843	G.B.	...	*Torsional Vibration Analysis of Systems Connected by Flexibly Mounted Epicyclic Gearing* (*An Extension of the Dynamic Stiffness Method*). (R. G. Manley, Jour. of the Roy. Aero. Sci, Vol. 48, No. 403, July, 1944, pp. 260-263.)
208	25967	U.S.A.	...	*Ranger's Engine Research Program* (*Air Cooling Research*). (Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 92-94.)
209	25986	U.S.A.	...	*A Statistical Survey of Failures in Aircraft Engines*. (S. H. Rolle, Aero Digest, Vol. 45, No. 22, 1/5/44, p. 82.)
210	26010	U.S.A.	...	*Combating Vibration in Aircraft Power Plants and their Mountings*. (T. D. Copeland and G. Getline, Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 22-24, 67.)
211	26033	U.S.A.	...	*Improving Engine Performance by Exhaust Pipe Tuning* (*Two Stroke Engines*). (P. H. Schweitzer, J. Amer. Soc. Naval Engineers, Vol. 56, No. 2, May, 1944, pp. 185-242.)
212	26060	U.S.A.	...	*Computing Load on Aircraft Engine Mount Rings*. (M. S. Simms, Automotive Industries, Vol. 90, No. 2, 1st May, 1944, p. 42.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
213	26574	U.S.A. ...	*Performance of Agitated Gas Liquid Contractors (e.g. Vaned Disks).* (C. M. Cooper & Others, Ind & Eng. Chem. (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 504-516.)
214	26577	U.S.A. ...	*Gas-Liquid Contacting by Mixers (Dispersion of Air in Water by Impellor).* (H. C. Foust & Others, Ind. & Eng. Chem. (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 517-522.)
			Thermodynamics.
215	26213	U.S.A. ...	*Second Law of of Thermodynamics for Changes of State and quantity of Working Substance with Particular Reference to Steam Engines.* (G. Zerkowitz, Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-108-112.)
216	26216	U.S.A. ...	*Temperature Relations in Hournel Bearing Systems (Discussions).* (Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-124-126.)
217	27216	Germany ...	*Non-steady Heat Transfer in Gases with Special Reference to Piston Engine.* (H. Pfriem, V.D.I. Forschungsheft, Vol. 13, No.413,M arch/April, 1942, 29 pp.)
218	26271	G.B.	*A New Polytropic Chart for Gas Turbine Problems.* (B. Wood, The Engineer, Vol. 178, No. 4,621, August 4th, 1944, pp. 80-82.)
			Oil, D.C. Engines, etc.
219	26084	G.B.	*Two-Stroke Compression-Ignition Engines.* (R. Wisner, Engineering, Vol. 158, No. 4,098, July 28, 1944, p. 76.)
220	26272	Argentine ...	*Railcar Oil Engines in the Argentine, No. 1.* (The Engineer, Vol. 178, No. 4,621, August 4th, 1944, pp. 82-84.)
221	26370	G.B.	*The Conversion of Compression-Ignition Engines to Producer-Gas Operation.* (E. Giffen and Others, Engineering, Vol. 158, No. 4,099, 4/8/44, pp. 98-100.)
222	26423	G.B.	*Light Alloys in Heavy Oil Engines.* (Metallurgia, Vol. 29, No. 172, February, 1944, p. 199.)
223	26472	Argentine ...	*Railcar Oil Engines in the Argentine II.* (The Engineer, Vol. 178, No. 4,622, 11/8/44, pp. 100-102.)
224	26650	G.B.	*General Purpose Indexing Table (Application to Internal Combustion Engines).* (Machinery, Vol. 64, No. 1,656, 6/7/44, p. 16.)
			Maintenance and General.
225	25848	U.S.A. ...	*New Chemical Compound for Dehydrating Petrol Fuel Systems.* (The Review of Scientific Instruments, Vol. 15, No. 4, April, 1944, p. 113.)
226	26368	G.B.	*Protection of Aero Engines from Corrosion in Transit.* (Engineering, Vol. 158, No. 4099,, 4/8/44, p. 88.)
227	26500	G.B.	*Fighting an Implacable Foe (Use of Vokes Filters, etc. to overcome the Dust Problem).* (Flight, Vol. 46, No. 1,856, 20/7/44, p. 71.)
228	26622	U.S.A./G.B. ...	*Why Carburize? A Critical Examination of a Modern Tendency.* (D. Macpherson, Machinery, Vol. 64, No. 1,651, 1/6/44, pp. 605-607.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Turbines, Superchargers.
229	25899	G.B.	...	*The Rotol Calvin Supercharger.* (The Engineer, Vol. 178, No. 4620, 28th July, 1944, pp. 73-74.)
230	25937	U.S.A.	...	*Gas Turbines—Present Status and Future Prospects.* (S. A. Tucker, Mechanical Engineering, pp. 363-368.)
231	25939	U.S.A.	...	*The Basic Gas-Turbine Plant and Some of its Variants* (J. K. Salisbury, Mechanical Engineering, pp. 373-383.)
232	26035	U.S.A.	...	*Reflections on Recent Publications on Gas Turbine Developments.* (F. Nettel, J. Amer. Soc. Naval Engineers, Vol. 56, No. 2, May, 1944, p. 225.)
233	26037	U.S.A.	...	*Gas Turbines and Superchargers (Digest).* (S. A. Moss, J. Amer. Soc. Naval Engineers, Vol. 56, No. 2, May, 1944, pp. 273-286.)
234	26206	Germany	...	*List of German Patents on Gas Turbine Plants* (1943). (Miscellaneous Publications, p. 10.)
235	26501	G.B.	...	*Rotol Cabin Supercharger.* (Flight, Vol. 46, No. 1,856, 20/7/44, pp. 72-73.)
				FUELS AND LUBRICANTS.
				Liquid Fuels.
236	25932	G.B.	...	*Fuel Shortage May Prove a Major Factor in Shortening War (M.E.W. Summary).* (Petroleum Times, Vol. 48, No. 1,225, 8/7/44, pp. 423-424.)
237	26176	U.S.A.	...	*Fuel Saving by Leaning the Mixture (Sperry Detonation Detector).* (F. H. Smith, Air Transport, Vol. 2, No. 7, July, 1944, pp. 34-37.)
238	26362	U.S.A.	...	*Factors Affecting the Antiknock Performance of Post War Fuels.* (T. H. Risk, J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 213-226.)
239	26369	G.B.	...	*The Efficient Use of Fuel.* (Engineering, Vol. 158. No. 4.099, 4/8/44, pp. 96-97.)
240	26375	U.S.A.	...	*Future and Past Production of 100 Octane Petrol in U.S.A.* Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, p. 10 (Adv.).
241	26512	U.S.A.	...	*Mobilized Research—Progress Report of Co-ordinating Research Council (Review of Research in Fuels and Lubricants).* (C. D. Veal, S.A.E. Journal, Vol. 52, No. 4, April, 1944, pp. 162-168.)
242	26579	U.S.A.	...	*Neutral Critical Solution. Temperatures of Paraffins with Nitrobenzine and β.β¹—Dichloroethyl Ether.* (H. M. Woodburn and Others, Ind. & Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 588-590.)
				Gaseous Fuels.
243	26571	U.S.A.	...	*Hydro-carbon Gases—Specific Heats and Power Requirements for Compression.* (E. G. Schiebel, D. F. Othmer, Ind. & Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 580-583.)
				Solid Fuels.
244	25849	G.B.	...	*Charcoal Briquettes as Locomotive Fuel.* (H. Greene & Jewitt, Nature, Vol. 153, 8/7/44, pp. 58-59.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
245	26391	U.S.A.	...	*Coal as an Auxiliary Source of Gasoline supply* (*Relative Costs of Coal, Oil, Natural Gas*). (H. C. Porter, Industrial and Engineering Chem. (News Edition), Vol. 22, No. 11, 10/6/44, p. 904.)
246	26578	U.S.A.	...	*Bitumen-Aggregate Adhesive Modification by Chemical Treatment.* (J. W. Swanson, Ind. & Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 584-588.)
				Oils and Lubricants.
247	25933	G.B.	...	*The Oil Prospects of Portugal.* (A. B. Thompson, Petroleum Times, Vol. 48, No. 1,225, 8/7/44, pp. 431-434.)
248	25934	G.B.	...	*Changes in Oil Production Problems.* (C. A. P. Southwell, Petroleum Times, Vol. 48, No. 1,225, 8/7/44, pp. 437-438.)
249	25935	G.B.	...	*Story of the World's Deepest Oil Test.* (C. A. Daniels, Petroleum Times, Vol. 48, No. 1,225, 8/7/44, pp. 440-404.)
250	25969	U.S.A.	...	*Refining Practice Paralleled in Used Oil Reclamation.* (W. S. Boynton, Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 99-100.)
251	26034	U.S.A.	...	*Pressure-Wear Index. A Measurement of Extreme Pressure Properties of Lubricants, Part. I.* (R. C. Adams & Others, J. Amer. Soc. Naval Engineers, Vol. 56, No. 2, May, 1944, pp. 213-214.)
252	26167	G.B.	...	*Magnetic Filtration of Cutting and Lubricating Oils and Coolants.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, p. 1403.)
253	26208	G.B.	...	*Heat Effects in Lubricating Films.* (A. C. Hagg, Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-72-76.)
254	26333	U.S.A.	...	*Development of Turbidimetric Standards and Tests of Turbidimeters for Oil-in-Water Emulsions* (*for Determining amount of Emulsified Oil-in-Steam Condensaters*). (Journal of the Franklin Inst. Vol. 237, No. 5, May, 1944, pp. 411-412.)
255	26385	U.S.A.	...	*Oxidation of Lubricating Oils, Effect of Natural Sulfur Compounds and of Peroxides.* (G. H. Denison, Ind. and Eng. Chemistry (Industrial Ed.), Vol. 36, No. 5, May, 1944, pp. 477-482.)
256	26508	U.S.A.	...	*A New Laboratory Method of Evaluating Ring-Sticking Tendencies of Aircraft Oils.* (L. W. Griffith, S.A.E. Journal, Vol. 53, No. 4, April, 1944, pp. 137-141.)
257	26569	U.S.A.	...	*Mineral Oil Oxidation.* (N. M. Hicks Bruun, Ind. and Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 562-568.)
258	26570	U.S.A.	...	*Viscosities and Densities of Hydrogenated Cotton Seed Oils.* (H. Wakeham, F. C. Mayne, Ind. and Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 568-570.)
				Anti-Freeze.
259	26319	G.B.	...	*Ethylene Glycol* (*I.C.I. Publication*). (Miscellaneous Publications, p. 27.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			ELASTICITY AND STRENGTH.
260	26207	G.B. ...	... *Measurement of Dynamic Stress and Strain in Tensile Test Specimens (Cold-rolled Steel and Dural).* (R. O. Fehr and Others, Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-66-71.)
261	26209	U.S.A.	... *Shrink-Fit Stresses and Deformations.* (A. W. Rankin Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-77, 85.)
262	26214	U.S.A.	... *An Investigation of the Cross-Spring Pivot.* (W. E. Young, Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-113-120.)
263	26215	U.S.A.	... *A Photoelastic Study of Bolt and Nut Fastening (Discussion).* (Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-121-124.)
264	26217	U.S.A.	... *Photoelastic Separation of Principal Stresses by Oblique Incidence (Discussion).* (Journal of Applied Mechanics, Vol. 11, No. 2, June, 1944, pp. A-125-126.)
265	26510	U.S.A.	... *On the Strength of Highly Stressed Dynamically Loaded Bolts and Studs.* (J. O. Almen, S.A.E. Journal, Vol. 52, No. 4, April, 1944, pp. 151-158.)
266	26820	Germany	... *The Production of Superimposed Fatigue Stresses and their Effect on the Fatigue Strength and Stress Distribution of Shafts Fitted with a Transverse Hole.* (A. Thum and W. Kermser, V .D. I. Forschungsheft, No. 419, March/April, 1944, pp. 1-33.)
			MATERIALS.
			A. Properties.
			Al. and Mg. Alloys.
267	25851	U.S.A.	... *Down Grading of Aluminium Casting Alloys.* (Metal Progress, Vol. 45, No. 5, May, 1944, pp. 892-893.)
268	25854	U.S.A.	... *Causes and Cures of Defects in Mg. Sand Castings.* (R. B. McCanley & L. F. Mondolfo, Metal Progress, Vol. 45, No. 5, May, 1944, pp. 905-910.)
269	25867	U.S.S.R.	... *Aluminium—Zinc—Lithium Alloys (Effect of Ageing) Properties of Rolled Sheet, Corrosion Resistance (From the Russian).* (T. A. Badayeva & F. I. Shamrai, Metal Industry, Vol. 65, No. 2, 14/7/44, pp. 23-24.)
270	25868	G.B. ...	... *Magnesium Production—Development of the Pidgeon Ferro-Silicon Process in Canada.* (G. L. White, Metal Industry, Vol. 65, No. 2, 14/7/44, pp. 25-26.)
271	25871	G.B. ...	... *Machining Light Alloys (Booklet).* (Metal Industry, Vol. 65, No. 3, 21/7/44, p. 36.)
272	25873	G.B. ...	... *Aluminium Alloys in Building.* (E. G. West & D. V. Pike, Metal Industry, Vol. 65, No. 3, 21/7/44, pp. 37-40.)
273	25876	Germany	... *Al-Cu-Mg. Alloys (Abstract of German Paper).* (W. Latt, Metal Industry, Vol. 65, No. 3, 21/7/44, p. 41.)
274	25900	G.B. ...	... *Theory and Practice of the Utilization of Aluminium Alloys in Post-War Building.* (E. G. West & D. V. Pike, Light Metals, Vol. 7, No. 79, August, 1944, pp. 361-368.)

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275	25903	G.B.	...	*Magnesium in Post-War U.S.A.* (Light Metals, Vol. 7, No. 79, August, 1944, p. 373.)
276	26025	U.S.A.	...	*Notes on Magnesium Alloy in Design.* (R. O. Brittan, Autom. Ind. Vol. 90, No. 12, 15/6/44, pp. 26-29.)
277	26048	U.S.A.	...	*Adhesive for Bonding Wood to Metal (Pliobond).* (Automotive Industries, Vol. 90, No. 8, 15/4/44, p. 100.)
278	26053	U.S.A.	...	*Magnesium Castings (Hills-McCanna Foundry).* (J. Geschelin, Automotive Industries, Vol. 9, No. 2, May, 1944, pp. 30-32, 90.)
279	26219	G.B.	...	*The Protective Influence of Manganese in the Corrosion of Aluminium Containing Magnesium Alloys.* (F. A. Fox & C. J. Bushrod, Institute of Metals, Vol. 70, No. 7, July, 1944, pp. 325-338.)
280	26229	U.S.A.	...	*Wrought and Cast Magnesium for Airframes (Effect of Peening on Stress Corrosion, etc.).* (V. N. Krivoboko, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1104,-1,110, 1,132.)
281	26400	U.S.A.	...	*Calcium and Magnesium. Development of the Electro Metallurgical Co's Processes for Their Production.* (G. D. Bagley, Ind. and Eng. Chem. (News Edition). Vol. 22, No. 11, 10/6/44, pp. 958-960.)
282	26420	G.B.	...	*Aluminium at War.* (M. C. Devereux, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 183-188.)
283	26421	G.B.	...	*British Aluminium Industry in War Time.* (G. Mortimer, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 189-197.)
284	26422	G.B.	...	*Secondary Aluminium in War.* (R. J. Priestman, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 197-199.)
285	26425	G.B.	...	*The Application of Aluminium Alloys Present and Future.* (J. T. Robinson, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 202-206.)
286	26426	G.B.	...	*Care Consideration in the Application of Light Alloys to Ship Construction.* (Metallurgia, Vol. 29, No. 172, February, 1944, p. 206.)
287	26433	G.B.	...	*Magnesium from Brines or Seawater.* (Metallurgia Vol. 29, No. 172, February, 1944, p. 225.)
288	26458	U.S.A.	...	*Production of Magnesium by the Carbothermic Process at Permanente California, U.S.A. (Reduction of Magnesium by Carbon) T.P.* 1671. (T. A. Dungan, Metals Technology, Vol. 11, No. 2, February, 1944, 7 pp.)
289	26465	U.S.A.	...	*Cast Reports for Magnesium Distillation at 21500F by the Pidgeon Process T.P.* 1709. (F. B. Foley, R. L. Sebastian, Metals Technology, Vol. 11, No. 2, February, 1944, 5 pp.)
290	26491	G.B.	...	*Degassing Aluminium Alloys.* (R. E. Ward, Metal Industry, Vol. 65, No. 6, 11/8/44, p. 90.)
291	26492	G.B.	...	*Alumina from Clay (Ammonium Sulphate Process).* (Metal Industry, Vol. 65, No. 6, 11/8/44, p. 91.)
292	26526	U.S.A.	...	*Alumino—Silicate Refractories (with Extensive Bibliography).* (J. H. Chesters, Iron Age, Vol. 153, No. 24, 15/6/44, pp. 79-85.)

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293	26647	Germany	...	*The Technology of Magnesium and its Alloys* (*Translated from German, Book Review*). (Dr. Adolf Bock, Machinery, Vol. 64, No. 1,656, 6/7/44, p. 7.)
294	26669	U.S.A. G.B.	...	*The Production of Aluminium Gravity Die Castings* (*Abstract*). (J. Vickers, Machinery, Vol. 64, No. 1,659, 27/7/44, pp. 105-108.)

Iron and Steel.

295	26155	U.S.S.R.	...	*Iron Silicon Alloys of High Initial Permeability* (*R.T.P. Translation No. 2,176*). (F. Pawlek, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,747-1,351.)
296	26223	U.S.A.	...	*Purchase of Steels on Performances Rather than Analysis* (*Symposium of Papers*). (Various Authors, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,990-1,101.)
297	26224	U.S.A.	...	*Equivalence of Hardened Steels when Tested in Tension and Impact.* (W. G. Patton, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,094-1,096.)
298	26225	U.S.A.	...	*Appraisal of Steels by their Hardenability.* (W. E. Tominy, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,097-1,099.)
299	26226	U.S.A.	...	*Alloy Steel Specification Based on Type Analysis and Hardenability.* (G. Van Dyke, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,099-1,100.)
300	26227	U.S.A.	...	*Problems Applying Especially to Toolsteels.* (S. C. Spalding, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,100-1,101.)
301	26230	U.S.A.	...	*Transformation of S.A.E. 4330 During Continuous Cooling* (*Data Sheet*). (Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,110B.)
302	26356	U.S.A.	...	*Effect of Wartime Development on Future Steels with Discussion* (*Fatigue Endurance, Heat Treatment, Castings, Welding, Alloy Evaluation Hardenability, Special Addition Agents, N.E. Steels*). (L. P. Eddy, J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 169-182.)
303	26417	G.B.	...	*The Effect on the Hardenability of Small Additions of Chromium and Molybrenum to a Grain Size Controlled 0.9% Nickel Steel.* (W. Steven, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 177-180.)
304	26464	U.S.A.	...	*Recrystallisation and Twin Relationships in Silicon Ferrite T.P. 1691.* (C. G. Dunn, Metals Technology, Vol. 11, No. 2, February, 1944, 14 pp.)
305	26473	G.B.	...	*Post War Building Studies No. 7 Steel Structures, No. 8 Reinforced Concrete Structures,* (The Engineer, Vol. 178, No. 4,622, 11/8/44, pp. 103-104.)
306	26529	U.S.A.	...	*Factors in the Development and Selection of High Temperature Alloys for Dynamic Loading* (*Application to Jet Planes and Gas Turbines*). (C. T. Evans, Iron Age, Vol. 153, No. 22, 1/6/44, pp. 38-41.)

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			Non-Ferrous Alloys.
307	25856	G.B.	*Processing Quartz.* (Nature, Vol. 153, 8/7/44, p. 50.)
308	25864	G.B.	*Bronze Welding Rods.* (Journal of Sci. Inst. Vol. 21, No. 1, 24/7/44, p. 18.)
309	25927	U.S.S.R. ...	*Purification of Zinc* (*from the Russian*). (D. M. Chizhikov & N. N. Sevryukov, Metal Industry, Vol. 65, No. 4, 28/7/44, p. 55.)
310	26128	G.B.	*Beryllium Copper in Instrument Design* (*Springs, Pressure-Responsive Elements, Bourdon Tubes, etc.*). (L. B. Hunt, Jour of Sci. Instruments, Vol. 21, No. 6, 24/7/44, pp. 97-105.)
311	26273	G.B.	*Post-war Building Studies No.* 13—*Non-ferrous Metals.* (The Engineer, Vol. 178, No. 4,621, August 4th, 1944, pp. 84-83.)
312	26294	G.B.	*Cuban Nickel.* (Metal Industry, Vol. 65, No. 5, August 4th, 1944, p. 73.)
313	26431	G.B.	*Copper Rings Centrifugally Cast.* (Metallurgia, Vol. 29, No. 172, February, 1944, p. 223.)
314	26456	U.S.A. ...	*Stress Corrosion Cracking of* 70-30 *Brass by Amines T.P.* 1660. (H. Rosenthal, A. L. Jamieson, Metals Technology, Vol. 11, No. 2, February, 1944, p. 9.)
315	26459	U.S.A. ...	*Grain Growth and Recrystallisation of* 70-30 *Cartridge Brass T.P.* 1673. (R. S. French, Metals Technology, Vol. 11, No. 2, February, 1944, 15 pp.)
316	26460	U.S.A. ...	*Constitution of the System Indium Zinc* (*Forms Low Melting Alloy, Tensile Stress Given*) *T.P.* 1682. (F. N. Rhines, A. H. Grobe, Metals Technology, Vol. 11, No. 2, February, 1944, 10 pp.)
317	26462	U.S.A. ...	*Rolled Zinc Titanium Alloys T.R.* 1687. (E. A. Anderson and Others, Metals Technology, Vol. 11, No. 2, February, 1944, 9 pp.)
318	26463	U.S.A. ...	*Effect of Grain Size and Bar Diameter on Creep Rate Copper at* 200° *C. TR* 1690. (E. R. Parker, C. F. Riesness, Metals Technology, Vol. 11, No. 2, February, 1944, 8 pp.)
319	26487	G.B.	*Zinc Smelting and Refining.* (R. A. Young, Metal Industry, Vol. 65, No. 6, 11/8/44, pp. 82-84.)
320	26489	G.B.	*Properties of Tin Bronze—The Effect of Some Variations in Casting Procedure.* (W. T. Pell-Walpole and V. Kondic, Metal Industry, Vol. 65, No. 6, 11/8/44, pp. 85-87.)
			Plastics and Resins.
321	25909	G.B.	*The Dyeing of the New Rayons.* (C. M. Whittaker, Chemistry and Industry, Vol. 63, No. 30, July 22, 1944, pp. 269-271.)
322	25950	U.S.A. ...	*Trends in Cellophane.* (Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 84-86, 144.)
323	26118	G.B.	*The Cleaning of Plastics* (*with Special Reference to Cleaning after Fabrication Processes*) *Part I.* (E. E. Halls, Plastics, Vol. 7, No. 86, July, 1944, pp. 305-314.)
324	26119	G.B.	*Moulded Plastic Vaporizer* (*in Durez Resin*) (Plastics, Vol. 7, No. 86, July, 1944, p. 315.)

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325	26121	G.B.	...	*Cellulose Acetate Butyrate Tape as Primary Insulation for Wires and Cables* (*Abstract*). (Allen, Plastics, Vol. 7, No. 86, July, 1944, p. 320.)
326	26122	G.B.	...	*Physical Behaviour and Testing of Plastics—II.* (H. Barron, Plastics, Vol. 7, No. 86, July, 1944, pp. 322-330.)
327	26124	U.S.A.	...	*Resin Treated Wood Products Developed by the U.S. Forest Products Laboratory.* (Plastics, Vol. 7, No. 86, July, 1944, p. 344.)
328	26125	G.B.	...	*Resinoids and other Plastics as Film Formers—XXIII Coating Media on Vinyl Acetate and Polyvinyl Aocohol Base.* (B. J. Brajnikoff, Plastics, Vol. 7, No. 86, July, 1944, pp. 347-350.)
329	26154	G.B.	...	*The Chemical Raw Material Potential and its Relation to the Trend of Synthetic Resin Development.* (W. D. Scott, Chemistry and Industry, Vol. 62, No. 31, 29th July, 1944, pp. 274-278.)
330	26288	G.B.	...	*Zinc Alloy Die-Casting* (*Design, Machining, Choice of Alloy, Surface Finishing, etc.*). (J. Gerber, Metal Industry, Vol. 65, No. 5, August 4th, 1944, pp. 66/8.)
331	26384	U.S.A.	...	*Physical Structure of Phenoplasts* (*Application of Plastics and Synthetic Rubber*). (R. A. Barkhuff, T. S. Carswell, Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 461-466.)
332	26390	U.S.A.	...	*Plastics* (1) *Chemistry* (2) *Applications* (3) *Production.* (G. M. Kline, Industrial and Engineering Chem. (News Edition), Vol. 22, No. 11, 10/6/44, pp. 890-899.)
333	26392	U.S.A.	...	*Recent Developments and Their Effects on the Plastics Industry* (*with Particular Reference to Production and Costs*) (*Abstract*). (J. J. Pyle, Industrial and Engineering Chem. (News Edition), Vol. 22, No. 11, 10/6/44, pp. 910-911.)
334	26393	U.S.A.	...	*Combination of Plastic and Glass Fibres* (*Abstract*). (F. W. Preston, Industrial and Engineering Chem. (News Edition), Vol. 22, No. 11, 10/6/44, pp. 911-912.)
335	26394	U.S.A.	...	*Geon Resins* (*Application to Synthetic Rubber Electric Insulation*) (*Abstract*). (M. S. Moulton, Ind. and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/6/44, p. 912.)
336	26404	U.S.A.	...	*Plastic Resin Board.* (Ind. and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/6/44, p. 953.)
337	26654	G.B.	...	*Nylon* (*Thermo Plastic*) *with High Softening Temperature.* (Machinery, Vol. 65, No. 1,656, 6/7/44, p. 26.)
				Rubber (Nat. and Syn.).
338	25908	G.B.	...	*Some Rheological Properties of Polyvinyl Chloride.* (L. Bilmes, J. of Soc. of Chem. Ind. (Monthly), June, 1944, pp. 182-185.)
339	25941	U.S.A.	...	*Use of Rubber in Power-Drive Lines.* (J. H. Booth, Mechanical Engineering, pp. 389-391, 397.)
340	26000	U.S.A.	...	*"Paracon"—New Polyester Rubber.* (Aero Digest, Vol. 45, No. 2, 1/5/44, p. 169.)

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341	26031	U.S.A. ...	*Synthetic Rubber "Pliolite S—1".* (Autom. Ind. Vol. 90, No. 12, 15/6/44. p. 80.)
342	26074	U.S.A. ...	*New Plasticizer Makes GR-S Synthetic Rubber More Workable.* (Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 63, 118.)
343	26374	U.S.A. ...	*Production of Synthetic Rubber that Withstands High Temperatures by Mathieson, Alkali Works.* (Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, p. 8 Adv.
344	26386	U.S.A. ...	*Production of Polystyrene (Artificial Rubber).* (Ind. and Eng. Chemistry (Industrial Ed.), Vol. 36, No. 5, May, 1944, p. 126 Adv.
345	26389	U.S.A. ...	*Production and Prospects of Synthetic Rubber Industry in U.S.A. (Abstract).* (Dewey, Industrial and Engineering Chem. Vol. 22, No. 11, (News Edition), 10/6/44, p. 876.)
346	26399	U.S.A. ...	*A New Method of Producing Isoprene for Synthetic Rubber.* (J. H. Naviyy, Ind. and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/0/44, p. 920.)
347	26507	U.S.A. ...	*Recent Progress in Synthetic Rubbers.* (P. M. Torrence S.A.E. Journal, Vol. 52, No. 4, April, 1944, pp. 133-136.)
348	26520	G.B.	*Bonding Rubber to Metal.* (Automobile Engineer, Vol. 34, No. 452, August, 1944, p. 334.)
349	26572	U.S.A. ...	*Insurance Plants (Synthetic Rubber Aluminium, etc.) Abstract.* (D. B. Keyes, Ind. and Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 8-10.)
			Paints, Lacquers, etc.
350	26321	India ...	*The Thermal Conductivity of Lac and Lac Moulding Compositions (Bulletin No. 47 Published by the Indian Lac Research Institute).* (G. N. Bhattacharya, Miscellaneous Publications, p. 14.)
351	26383	U.S.A. ...	*Ammonium Ferrous Phosphate. A Pigment for Metal Protective Paint Finishes.* (A. M. Erskine and others. Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 456-460.)
352	26530	G.B.	*Spatter Proof Liquid for Use in Holding Steel Bases.* (Iron Age, Vol. 153, No. 22, 1/6/44, p. 41.)
353	26668	U.S.A./G.B. ...	*Paint Drying on Petrol Containers by Osram Infra-red Lamps.* (Machinery, Vol. 64, No. 1,659, 27/7/44, p. 104.)
			Wood and Plywood.
354	25946	U.S.A. ...	*Glued—Laminated Lumber Construction (Discussion of A.S.M.E. Paper).* (Various Authors, Mechanical Engineers, p. 415.)
355	25970	U.S.A. ...	*Properties of Wood Improved by Chemical Impregnation.* (Aero Digest, Vol. 45, No. 3, 1/5/44, p. 104.)
356	26117	G.B.	*Wood as Raw Material.* (Plastics, Vol. 7, No. 86,) July, 1944, pp. 302-303.)
357	26373	U.S.A. ...	*Use of Methylolurea in Reconstituting Wood.* (Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 5-8 (Adv.)

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			Glass and Ceramics.
358	26075	U.S.A. ...	*Textile Made of Glass and Asbestos.* (Automotive Industries, Vol. 90, No. 10, 15th May, 1944, p. 110.)
359	26120	Germany ...	*Surface Hardness of Organic Glasses* (*Technique for Testing Scratch Resistance of Transparent Plastics* (*From Luftfahrtforschung*, 1943/20/297). (Perkuhn, Plastics, Vol. 7, No. 86, July, 1944, pp. 316-319.)
360	26405	U.S.A. ...	*Glass-Asbestos Textile* (*Application of Tail Wheel Spats, etc.*). (Ind. and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/6/44, p. 953.)
			Felt, Cementite, Silver.
361	26126	G.B.	*Impregnated Felt* (*Head and Sound Insulator, etc.*). Plastics, Vol. 7, No. 86, July, 1944, p. 350.)
362	26233	U.S.A. ...	*Structure Cementite.* (Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,117-1,118, 112A.)
363	26427	G.B.	*On the Density, Thixotropy and Setting of Heterogeneous Silver Amalgams.* (D. R. Hudson, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 207-213.)
			General Properties of Metals, including Corrosion.
364	25857	G.B.	*Mechanism of Brittle Rupture.* (J. B. Murgatroyd, Nature, Vol. 153, 8/7/44, pp. 51-52.)
365	25858	G.B.	*Place—Exchange Theory of Plastic Flow, as Applied to Polymera.* (D. D. Eley & D. C. Pepper, Nature, Vol. 153, 8/7/44, p. 52.)
366	25874	G.B.	*Permeable Refractories* (*in Gas-fired Furnace Design*). (Metal Industry, Vol. 65, No. 3, 21/7/44, pp. 40-41.)
367	26160	G.B.	*Strain Hardening and Recrystallisation* (*Digest*). (C. H. Mathewson, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,359-1,361.)
368	26228	U.S.A. ...	*The Metallurgical Notch as a Factor in Fatigue Failure.* (W. H. Bruckner, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,102-1,107.)
369	26292	G.B.	*Stress-Corrosion Cracking* (*Digest*). (F. T. Sisco, Metal Industry, Vol. 65, No. 5, August, 4 1944, p. 70.)
370	26334	U.S.A. ...	*Compressibility and Resilience of Fabrics.* (Journal of the Franklin Inst. Vol. 237, No. 5, May, 1944, pp. 415-416.)
371	26371	U.S.A. ...	*Electronic Theory of Resistance to Rust* (*Abstract*). (H. H. Uhlig, Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, p. 5 (Adv.)
372	26543	U.S.A. ...	*Corrosion Inhibitors.* (Iron Age, Vol. 153, No. 22, 1/6/44, p. 24.)
373	26549	U.S.A. ...	*Date on Springback of Metals.* (R. E. Oestreich, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 77-81, 138.)
374	26681	G.B.	*A Suggested Standard Method for the Examination of Anti-Corrosive Primers.* (P. M. Firk, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,217-1,220.)

ITEM No.	R.T.P. REF.			TITLE AND JOURNAL.
				B. Fabrication.
				Welding.
375	25841	Germany	...	*Device for Inserting new Electrodes without Interrupting Welding Process* (*Automatic Arc Welding*). (Gas und Elektrowarme, Vol. 44, No.. 5, May, 1944, p. 101.)
376	26055	U.S.A.	...	*Joint Fit-up and Backing Plates for Helium-Shielded Arc Welding of Magnesium*, (F. A. Wassell, Automotive Industries, Vol. 90, No. 2, May, 1944, pp. 34, 82.)
377	16171	G.B. ...	...	*Welding Processes in Automobile Production* (*Seam Welding, Flash Welding*. (J. P. Blundell, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,425-1,434.)
378	26172	G.B. ...	...	*Correlation of the Strength and Structure of Spot Welds in Aluminium Alloys* (*P.T. I.*). (F. Kaller & D. W. Smith, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,436-1,437.)
379	26290	G.B. ...	...	*Spot Weld Joint Efficiency*. (Metal Industry, Vol. 65, No. 5, August 4th, 1944, p. 68.)
380	26326	G.B. ...	...	*Collection of Abstracts on Welding*. (Welding Literature Review, Vol. 6, No. 2, May, 1944, p. 141.)
381	26387	G.B. ...	...	*Bibliography of Published Information on Flash Welding* (1932—*Aug.* 1944). (R.T.P.3. Bibliography, No. 106, Issued by the Ministry of Aircraft Production.)
382	26428	G.B. ...	...	*Some Notes on the Welding of Non-Ferrous Metals*. (N. P. Inglis, Metallurgia, Vol. 29, No. 172, February 1944, pp. 214-216.)
383	26525	U.S.A.	...	*Welding in Post-War Steel Construction* (*Will Arc Welded Fabrication Replace Riveted Construction*). (L. M. Grove, Iron Age, Vol. 153, No. 24, 15/6/44, pp. 74-78.)
384	26533	U.S.A.	...	*Control of Moisture in Electrode Coatings* (*Effects of Moisture on the Quality of Arc Welds Particularly in Shipyard Welding. System of Storing Electrodes under Controlled Condition*). (R. V. Anderson Iron Age, Vol. 153, No. 22, 1/6/44, pp. 48-51.)
385	26557	U.S.A.	...	*Stabilized High Frequency Welder*. (W. W. Peddre, Aero Digest, Vol. 45, No. 6, 15/6/44, p. 112.)
386	26646	G.B. ...	...	*Studies in Arc Welding* (*Book Review*). (Machinery, Vol. 64, No. 1,656, 6/7/44, p. 7.)
387	26687	G.B. ...	...	*Welding Processes in Automotive Production* (*Resistance Welding Processes*). (J. Blundell, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,241-1,248, 1,256.)
388	26688	G.B. ...	...	*Welded Fuel Tanks for our Light Coastal Craft*. (H. G. Taylor, Steel Metal Industries, July, 1944, pp. 1,249-1,252.)
389	26689	G.B. ...	...	*Automatic Arc Welding as an aid to Increased Production*. (R. E. Wyer, Sheet Metal Industries, July, 1944, pp. 1,253-1,256.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
				Heat Treatment, Case Hardening.
390	25838	Germany	...	*Temperature Controls for Electric Furnaces.* (K. A. Lohansen, Gas und Elektrowarme, Vol. 44, No. 5, May, 1944, pp. 94-97.)
391	25839	Germany	...	*Electrically Heated Nitriding Furnaces with Forced Gas Circulation.* (Gas und Elektrowarme, Vol. 44, No. 5, May, 1944, pp. 97-98.)
392	25840	Germany	...	*Annealing Furnace for Steel Strip.* (Gas und Elektrowarme, Vol. 44, No. 5, May, 1944, pp. 101-102.)
393	25951	U.S.A.	...	*New Principles for Heating Plastic Coating* . (Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 100-101, 140.)
394	25869	G.B. ...	...	*Heat Treatment Control Technique (Annealing of Deep-Drawn Products) Part II.* (D. H. Lloyd, Metal Industry, Vol. 65, No. 2, 14/7/44, pp. 27-28.)
395	25870	G.B. ...	...	*Heat Treatment Control Technique (Annealing of Deep-Drawn Products) Part III.* (D. H. Lloyd, Metal Industry, Vol. 65, No. 3, 21/7/44, pp. 34-36.)
396	25925	G.B. ...	...	*Heat Treatment Control Technique (Application to Annealing of Deep-Drawn Products) Part IV.* D. H. Lloyd, Metal Industry, Vol. 65, No. 4, 28/7/44, pp. 52-55.)
397	26011	U.S.A.	...	*Expansion of 24 S. Alclad Aluminium Sheet During Heat Treatment.* (W. T. Kluge, Autom. Ind. Vol. 90, No. 11, 1/6/44, p. 25.)
398	26158	G.B. ...	...	*Temperature Measurement and Control for Metallurgical Furnaces of Varying Design.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,356-1,358.)
399	26164	G.B. ...	...	*Fundamental Principles and Applications of Induction Heating. Part I.* (Sheet Metal Industry, Vol. 2, No. 208, August, 1944, pp. 1,389-1,396.)
400	26220	G.B. ...	...	*The Effect of Quenching and Prolonged Tempering on the Structures of Base Tin-Antimony-Cadmium Alloys with an Addendum on the Experimental Control of Temper-Hardening in these Alloys.* (W. T. Pell-Walpole, Institute of Metals, Vol. 70, No. 7, July, 1944, pp. 339-348.)
401	26289	G.B. ...	...	*Cupola Melting of Non-Ferrous Alloys.* (Metal Industry, Vol. 65, No. 5, August, 1944, p. 68.)
402	26291	G.B. ...	...	*Heat Treatment Control Technique (Annealing Deep-Drawn Products)—Part V.* (D. H. Lloyd, Metal Industry, Vol. 65, No. 5, August, 1944, pp. 69-70.)
403	26295	G.B. ...	...	*Heat Treatment of Bronze (Abstract).* (Metal Industry, Vol. 65, No. 5, August, 4 1944, p. 73.)
404	26380	U.S.A.	...	*Radio Power for Processing Chemical Materials (High Frequency Heating).* (J. W. Robertson, Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 440-447.)
405	26414	G.B. ...	...	*Furnace Control Operated from the Load Temperature.* (G. G. Pamely-Evans, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 171-175.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
406	26457	U.S.A. ...	*Changes and Improvements in Modern Copper Smelting T.P.* 1669. (R. A. Wagstaffe, Metals Technology, Vol. 11, No. 2, February, 1944, 9 pp.)
407	26490	G.B.	*Heat Treatment Control Technique—Application in the Process Annealing of Deep-Drawn Products (Part VI).* (D. H. Lloyd, Metal Industry, Vol. 65, No. 6, 11/8/44, pp. 88-90.)
408	26534	U.S.A. ...	*Electrode Changes Eliminated in Salt Bath Furnace.* (Iron Age, Vol. 153, No. 22, 1/6/44, p. 51.)
409	26535	U.S.A. ...	*Heating Aluminium Billets by Low Frequency Induction.* (E. H. Plesset and J. R. Chadwick, Iron Age, Vol. 153, No. 22, 1/6/44, pp. 52-54.)
410	26611	G.B.	*Case Hardening of a Steel Tube by an Induction Coil.* (Machinery, Vol. 64, No. 1,647, 4/5/44, p. 502.)
411	26632	U.S.A./G.B. ...	*Frequency for Induction Heating (Correspondence).* (Machinery, Vol. 64, No. 1,653, 15/6/43, p. 659.)
412	26653	G.B.	*Application of H.F. Induction Heating to Soldering (Photograph).* (Machinery, Vol. 65, No. 1,656, 6/7/44, p. 25.)
413	26676	G.B.	*Temperature Measurement and Control for Metallurgical Furnaces of Varying Design.* (Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,178-1,180.)
414	26680	G.B.	*Infra-Red Heating.* (Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1215,-1,216.)
415	26683	G.B.	*A New Principle in Gas Fired Furnaces.* (Sheet Metal Industry, Vol. 20, No. 207, July, 1944, pp. 1,221-1,222.)
			Surface Protection.
416	25834	G.B.	*Electrolytic Process of Tinning.* (Engineer, Vol. 178, No. 4,619, 21/7/44, p. 53.)
417	25852	U.S.A. ...	*Protective Chemical Coatings on Steel (Al. Mg.), (symposium).* Metal Progress, Vol. 45, No. 5, May, 1944, pp. 898-900, 924.)
418	25877	G.B.	*Hard Chromium Plating (Digest of A.R.D. Report).* (Metal Industry, Vol. 65, No. 2, 21/7/44, pp. 42-44.)
419	25878	Germany ...	*Anodic Films—Theory of Crack Formation (Digest of German Paper).* (G. Elszner, Metal Industry, Vol. 65, No. 3, 21/7/44, p. 44.)
420	25902	G.B.	*Accelerated Anodizing (Commentary on Akimoff's Paper).* (Light Metals, Vol. 7, No. 79, August, 1944, pp. 371-373.)
421	25945	U.S.A. ...	*Porous—Chromium—Plated Rings (Discussion of A.S.M.E. Paper).* Various Authors, Mechanical Engineering, pp. 413-415.)
422	26165	G.B.	*Metal Finishing, Part VI, Electoplating, Modern Equipment and Technique.* (H. Silman, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, p. 1,397.)
423	26296	G.B.	*Salvage by Electrodeposition (Recovery of Over-Machined Steel Parts).* (Metal Industry, Vol. 65, No. 5, August, 4 1944, pp. 74-75.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
424	26297	G.B.	...	*Finishing Aluminium (Mechanical, Chemical, Electroplated and Organic Coatings).* (Metal Industry, Vol. 65, No. 5, August, 1944, pp. 75-76.)
425	26415	G.B.	...	*Electrolytic Tin Plating.* (M. M. Steinfels, F. A. Lowenheim, Metallurgia, Vol. 29, No. 172, February 1944, pp. 226-227.)
426	26419	G.B.	...	*Hard Nickel Plating.* (W. A. Wesley & B. J. Rochl, Metallurgia, Vol. 29, No. 172, February, 1944, p. 227.)
427	26568	U.S.A.	...	*Metallic Substitutes for Hot-Dipped Tin Plate.* (R. H. Luick, K. W. Brighton, Ind. and Eng. Chemistry (Industrial Edit.), Vol. 36, No. 6, June, 1944, pp. 522-528.)
428	26674	G.B.	...	*Du Pont Halogen Process for Electro Tinning.* (Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1171.)
429	26679	G.B.	...	*Metal Finishing—Part VI. Electroplating, Modern Equipment and Technique.* (H. Silman, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,205-1,214.)

Pressing, Punching, Extrusion.

430	26162	G.B.	...	*Practical Problems of Light Presswork Production (Part I).* (J. A. Grainger, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,367-1,370.)
431	26163	G.B.	...	*The Pressing of Sheet Metal.* (H. W. Swift, Sheet Metal Industry, Vol. 2, No. 208, August, 1944, pp. 1,371-1,374.)
432	26168	G.B.	...	*Spar Flanges and other Extrusions Examined in various Enemy Aircraft.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,404-1,504.)
433	26169	G.B.	...	*The Problem of Punching Strip of Varying Width.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, p. 1,406.)
434	26633	U.S.A./G.B.	...	*Closely Spaced Holes in Small Disc.* (Machinery, Vol. 64, No. 1,653, 15/6/43, p. 659.)
435	26677	G.B.	...	*The Pressing of Sheet Metal.* (N. W. Swift, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,183-1,188.)

Stripping, Polishing, Deburring, Tube Forming.

436	25923	G.B.	...	*Tube Forming—Details of the Wolverine Spun-End Process.* (Metal Industry, Vol. 65, No. 4, 28/7/44, pp. 50-51.)
437	25926	G.B.	...	*Stripping Chromium Deposits.* (Metal Industry, Vol. 65, No. 4, 28/7/44, p. 55.)
438	26232	U.S.A.	...	*An Analysis of a Typical Carburising Gradient.* (F. E. Harriss, Metal Progress, Vol. 45, No. 16, June, 1944, pp. 1,111-1,117.)
439	26298	G.B.	...	*Electrolytic Polishing of Aluminium Microsections.* (Metal Industry, Vol. 65, No. 5, August, 4 1944, p. 76.)
440	26488	G.B.	...	*Electrolytic Polishing.* (Metal Industry, Vol. 65, No. 6, 11/8/44, p. 84.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
441	26608	G.B.	*Surface Finish with Diamond Tools (Correspondence).* (Machinery, Vol. 64, No. 1,647, 4/5/44, p. 496.)
442	26635	U.S.A./G.B. ...	*Deburring Aluminium Sections.* (Machinery, Vol. 64, No. 1,655, 15/6/43, p. 664.)
443	26649	G.B.	*Superfinishing (Abstract).* (W. E. R. Clay, Machinery Vol. 64, No. 1,656, 6/7/44, p. 13.)
444	26675	G.B.	*Electrolytic Methods of Polishing Metals, Part III—Electrolytic Polishing of Nickel.* (S. Wernick, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,172-1,177.)
			Moulding and Casting.
445	25924	G.B.	*Casting Threads.* (Metal Industries, Vol. 65, No. 4, 28/7/44, p. 51.)
446	25928	G.B.	*Continuous Casting (Some Physical and Metallurgical Factors.* (V. Kondie, Metal Industry, Vol. 65, No. 4, 28/7/44, pp. 56-58.)
447	26218	G.B.	*The Influence of Centrifugal Castings (Horizontal Axis) upon the Structure and Properties of Metals.* (L. Northcott & V. Dickin, Institute of Metals, Vol. 70, No. 7, July, 1944, pp. 301-324.)
448	26382	U.S.A. ...	*Factors in Moulding Cellolose Derivatives.* (W. O. Bracken, F. E. Piech, Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 452-453.)
449	26618	G.B.	*The Injection of Metal into Die Casting Dies.* (H. K. Barton, Machinery, Vol. 64, No. 1,650, 25/5/44. p. 581.)
450	26643	G.B.	*The Injection of Metal into Die Casting Dies.* (H. K. Barton, Machinery, Vol. 64, No. 1,655, 29/6/44, p. 721.)
			Soldering and Brazing.
451	26542	U.S.A. ...	*Brazing—Joining Iron or Steel with a Copper—Base Alloy Bond.* (Iron Age, Vol. 153, No. 22, (1/6/44, pp. 23-24.)
452	26682	G.B.	*Silver Solder Fluxes.* (Sheet Metal Industries, Vol. 20, No. 207, July, 1944, p. 1.220.)
			Grinding, Machining, Milling.
453	25833	G.B.	*Negative Rake Milling Cutters (A. Herbert, Ltd., Coventry).* (Engineer, Vol. 178, No. 4619, 21/7/44, p. 53.)
454	26078	G.B.	*The Machining of Aluminium and Magnesium Alloys.* (Engineering, Vol. 158, No. 4,098, July, 28 1944, pp. 65-66.)
455	26159	G.B.	*Developments in Large Roll Grinding Equipment.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,359-1,361.)
456	26274	G.B.	*Momentum in Carbide Milling of Steel.* (The Engineer Vol. 178, No. 4621,, August 4th, 1944, p. 83.)
457	26300	G.B.	*Grinding Profiles.* (E. A. Cooke, J. of the Inst. of Prod. Engineers, Vol. 23, No. 7, July, 1944, pp. 255-277.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
458	26518	G.B.	*High Speed Milling* (*Recent American Developments*). (Automobile Engineer, Vol. 34, No. 452, August, 1944, pp. 329-330.)
459	26521	G.B.	*Hyper-Milling.* (Automobile Engineer, Vol. 34, No. 452, August,1944, pp. 335-337.)
460	26531	U.S.A. ...	*Grinding Bead Screws* (*Micrometer Screws for a Small Jig Borer—Accurate to* 0.0002 (*in*). (J. R. Moore, Iron Age, Vol. 153, No. 22, 1/6/44, pp. 42-46.)
461	26601	G.B.	*The Machining of Long Square Holes.* (J. Selby, Machinery, Vol. 64, No. 1,647, 4/5/44, p. 483.)
462	26612	G.B.	*Applications of Negative Rake Milling.* (Machinery, Vol. 64, No. 1,650, 25/5/44, pp. 561-564.)
463	26625	G.B.	*Power Required in Milling with Negative Rake Cutters.* (H. Erust, Machinery, Vol. 64, No. 1,652, 8/6/44, pp. 623-624.
464	26634	U.S.A./G.B. ...	*Speeds and Feeds for Milling Operations.* (Machinery, Vol. 64, No. 1,653, 15/6/43, pp. 660-663.)
465	26639	G.B.	*Some Aspects of Precision Grinding Practice.* (R. Whibley, Machinery, Vol. 64, No. 1,655, 29/6/44, pp. 709-713.)
			Powder Metallurgy.
466	25849	U.S.A. ...	*Explosibility of Metallic Powders.* (I. Hartmann and Others, Metal Progress, Vol. 45, No. 5, May, 1944, pp. 886-8,871, 930-932.)
467	26293	G.B.	*Powder Metallurgy—Determination of Particle Size by Gravitational Fractionation.* (P. R. Kalischer, Metal Industry, Vol. 65, No. 5, August, 4 1944, pp. 72-73.)
468	26527	U.S.A. ...	*Particle Size Determination for Metal Powders.* (Iron Age, Vol. 153, No. 24, 15/6/44, pp. 86-87, 166.)
469	25637	U.S.A. ...	*Powder Metallurgists Present Technical Advances.* (Iron Age, Vol. 153, No. 22, 1/6/44, pp. 55-58.)
470	26604	G.B.	*The Development of Powder Metallurgy* (*Abstract*). (Machinery, Vol. 64, No. 1,647, 4/5/44, p. 486.)
			Machines and Tools.
471	25821	G.B.	*The Use of Drills as Precision Tools.* (H. Moore, Aircraft Engineering, Vol. 16, No. 185, July, 1944, p. 208.)
472	25978	U.S.A. ...	*Compressed Air Powers Miniature Grinder.* (Aero-Digest, Vol. 45, No. 3, 1/5/44, p. 183.)
473	26020	U.S.A. ...	*Fixture to Bend Aluminium Tubing.* (Autom. Ind. Vol. 90, No. 11, 1/6/44, p. 34,.)
474	26022	U.S.A. ...	*Rotary Grind Adaptor which Permits the Automatic Grinding or the Full Width of a Valve Seat.* (Autom. Ind. Vol. 90, No. 11, 1/6/44, p. 34.)
475	26080	G.B.	*The "Benfold" Bending and Forming Machine.* (Engineering, Vol. 158, No. 4,098, July 28, 1944, pp. 67-88, 70.)
476	26086	G.B.	*The Machining of Non-Ferrous Alloys and the Application of Special Machine Tools.* (G. F. Staples, Jour. Inst. Prod. Eng. Vol. 23, No. 6, June, 1944, pp. 210-231.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
477	26157	G.B. ...	...	*Modern Metallurgical Gas-Producers.* (Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,352-1,355.)
478	26350	U.S.A.	...	*Shank & Tip Size Calculations for Carbide Tipped Tools (Data Sheet).* (Aviation, Vol. 45, No. 5, May, 1944, pp. 195-197.)
479	26536	U.S.A.	...	*Taper Type Cutter Mills Buttress Threads.* (Iron Age, Vol. 153, No. 22, 1/6/44, p. 54.)
480	26563	U.S.A.	...	*Novel Spray Gun for Small Parts.* (Aero Digest, Vol. 45, No. 6, 15/6/44, p. 209.)
481	26614	G.B. ...	...	*Drill Jig for a Small Bearing Bracket.* (Machinery, Vol. 64, No. 1,650, 25/5/44, p. 573.)
482	26621	U.S.A./G.B.	...	*Air-Operated Jigs and Fixtures.* (L. H. Leedham, Machinery, Vol. 64, No. 1,651, 1/6/44, pp. 601-604.)
483	26645	G.B. ...	...	*Simple Automatic Two-Speed Gear for Turret Lathe Spindle.* (Machinery, Vol. 64, No. 1,656, 6/7/44, p. 6.)
484	26648	G.B. ...	...	*Care and Use of Thread-Cutting Dies.* (Machinery, Vol. 64, No. 1,656, 6/7/44, pp. 6-12.)

C. Inspection.

X-Ray Analysis.

485	25904	G.B. ...	...	*Radiography of Light Alloy Castings.* (C. T. Snushall, Light Metals, Vol. 7, No. 79, August, 1944, pp. 375-382.)
486	26005	U.S.A.	...	*Radiography Applied to Welding.* (L. W. Ball. Iron Age, Vol. 153, No. 21, 25/5/44, pp. 54-58.)
487	26461	U.S.A.	...	*Micro-radiography—a New Metallurgical Tool T.P.* 1683.) (S. E. Maddigan, R. D. Zimmerman. Metals Technology, Vol. 11, No. 2, February, 1944. 26 pp.)

Optical and Electronic Analysis.

488	26015	U.S.A.	...	*Spectrographic Analysis of Metals in Low Concentrations.* (Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 33, 64.)
489	26432	G.B. ...	...	*Electronic Sorting and Testing.* (Metallurgia, Vol. 29. No. 172, February, 1944, pp. 223-224.)
490	26664	U.S.A./G.B.	...	*Micro-topography of Finely-finished Reflecting Surfaces (Abstract).* (J. F. Kayser, Machinery, Vol. 64, No. 1,659, 27/7/44, pp. 85-89.)

Mechanical and Chemical Testing.

491	25905	G.B. ...	...	*Precipitation from Supersaturated Solid Solutions (with Extensive Biblography) Part II.* (H. K. Hardy, Light Metals, Vol. 7, No. 79, August, 1944, pp. 383-409.)
492	25929	Germany	...	*Fatigue Bend Strength—Experiments on Al-Mg. Alloys under Corrosive Conditions (from the German)* (R. Sterner-Rainer & W. Jung-Konig, Metal Industry, Vol. 65, No. 4, 28/7/44, p. 60.)
493	26016	U.S.A.	...	*Improved Methods for Determining the Compression Properties of Sheet Metal.* (K. R. Jackman, Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 36-38.)

ITEM NO.	R.T.P REF.		TITLE AND JOURNAL.
494	26132	G.B.	*Evaluation of Rheological Constants from Tensile and Compressive Tests* (*Correspondence*). (Journal of Sci. Instruments, Vol. 21, No. 6, 24/7/44, pp. 111-112.)
495	26429	G.B.	*Dithizone as a Microchemical Reagent* (*for the Determination of Small Quantities of Metals*). (F. T. Beaumont, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 217-220.)
496	28430	G.B.	*Investigation into the Sieving of Fine Grain Size Material—I* (*From Kernkontorets Annales, Vol. 127, No. 4, 1943, pp.* 98-128.) (S. Mortsell, P. C. Villner, Metallurgia, Vol. 29, No. 172, February, 1944, pp. 221-222.)
497	26434	G.B.	*Applications of High Vacuum in Chemical Industries.* (R. R. Olive, Metallurgia, Vol. 29, No. 172, February 1944, pp. 225-226.)
498	26626	Germany ...	*Determination of Wear by Surface Measurement.* (Dr. G. Schlesinger, Machinery, Vol. 64, No. 1,652, 8/6/44, pp. 626-630.)
499	26686	G.B.	*The Manufacture of Nickel Combustion Boats for Laboratory Analysis* (*Determination of Carbon Content of Steels*). (C. L. Smith, Sheet Metal Industries, Vol. 20, No. 207, July, 1944, pp. 1,237-1,238.)

INSTRUMENTS.

Mechanical, Optical.

500	25832	G.B.	*A Novel Stick Micrometer.* (Engineer, Vol. 178, No. 4,619, 21/7/44, pp. 52-53.)
501	26014	U.S.A. ...	*Automatic Clearance Regulators for Poppet Valve Mechanisms.* (C. H. Buckhardt, Autom. Ind. Vol. 90, No. 11, 1/6/44, pp. 30-33, 72-76.)
502	26131	G.B.	*The Theory of Automatic Controllers and Followers* (*Correspondence*). (Journal of Sci. Instruments, Vol. 21, No. 6, 24/7/44, pp. 110-111.)
503	26600	G.B.	*Improvised Equipment for the Tool Room,* (*Extending Range of a Micrometer, Vernier Height Gauge from Steel Rules, Division Plates, etc.*). (R. Harries, Machinery, Vol. 64, No. 1,647, 4/5/44, pp. 477-683.)
504	26607	G.B.	*Measurement of Large Ring Screw Gauges.* (K. E. Summers, Machinery, Vol. 64, No. 1,647, 4/5/44, pp. 495-496.)
505	26629	G.B.	*The Slide Rule U Continued Fractions* (*e.g. Ratios in Screw Cutting*). (H. A. Chiverton, Machinery, Vol. 64, No. 1,652, 8/6/4, pp. 633-634,).
506	26631	U.S.A./G.B. ...	*Measurements of Large Ring Screw Gauges* (*Correspondence*). (J. W. Drinkwater, Vol. 64, No. 1,653, 15/6/43, pp. 658-659.)

Electrical, Electronic.

507	25836	G.B.	*Ultra Violet Detector for Ores* (*Short Abstract*). (Engineer, Vol. 178, No. 4,619, 21/7/44, p. 56.)
508	25847	U.S.A. ...	*C.E.C. Flux Meter.* (The Review of Scientific Instruments, Vol. 15, No. 4, April, 1944, pp. 110-111.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
509	25863	G.B.	*Bridge Voltage Regulators.* (C. Morton, Journal of Sci. Inst. Vol. 21, No. 1, 24/7/44, pp. 15-17.)
510	26076	G.B.	*The Dynamics of Axle-hung Electric Traction Motors—II.* (C. I. Butler, Engineering, Vol. 158, No. 4,098, July 28, 1944, pp. 63-64.)
511	26130	G.B.	*An Electronic Indicator for Liquid Separation.* (J. W. Broadhurst, Journal of Sci. Instruments, Vol. 21, No. 6, 24/7/44, pp. 108-109.)
512	26331	U.S.A. ...	*Experiments on and the Theory of the Action of the Geiger Point Counter.* (J. Morgan, Journal of the Franklin Inst., Vol. 237, No. 5, May, 1944, pp. 371-384.)
513	26642	G.B.	*The Electron Microscope (Abstract).* (Prof. G. D. Preston, Machinery, Vol. 64, No. 1,655, 29/6/44, p. 716.)
514	26652	G.B.	*Salford Radio-frequency Crack Detector.* (Machinery, Vol. 65, No. 1,656, 6/7/44, p. 23.)

PRODUCTION.

Organisation and Control.

515	25820	G.B.	*Production Control. The Production Plan.* (D. Tiranti, Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 205-208.)
516	25828	G.B.	*The Disposal of Government Surplus Stores.* (Engineer, Vol. 178, No. 4,619, 21/7/44, p. 47.)
517	25866	G.B.	*Trade Associations—Some Reflections on their Organisation.* (H. F. James, Metal Industry, Vol. 65, No. 2, 14/7/44, pp. 22-23.)
518	25892	U.S.A. ...	*Information Service and the War Effort.* (Ind. and Eng. Chemistry (News Edition), Vol. 22, No. 10, 25th May, 1944, pp. 808-809.)
519	25982	U.S.A. ...	*What about Government Surpluses?* (A. G. Mezerik, Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 56-57, 135.)
520	26023	U.S.A. ...	*A Plan for Unemployment Compensation During Reconversion.* (W. T. Rockwell, Autom. Ind. Vol. 90, No. 12, 15/6/44, pp. 17, 100.)
521	26041	U.S.A. ...	*Decentralization of Willow Run (Bomber Plant Results in Volume Output).* (E. L. Warner, Automotive Industries, Vol. 90, No. 8, 15/4/44, pp. 18-20, 85-88.)
522	26189	G.B.	*Reorganisation of Power Jets, Ltd.).* (Inter. Avia. Nos. 920-921, 20/5/44, p. 10.)
523	26204	U.S.A. ...	*Aircraft Production in the U.S.A. (April Figures).* (Inter. Avia. Nos. 920-921, 20/5/44, pp. 13-14.)
524	26205	U.S.A. ...	*American Rewards for Production Ideas put forward by Staff.* (Inter. Avia. Nos. 920-921, 20/5/44, p. 14.)
525	26239	U.S.A. ...	*The Industrial Lot and its Sampling Implications (Quality Control).* (L. E. Simon, Journal of the Franklin Inst. Vol. 237, No. 5, May, 1944, pp. 359-370.)
526	26242	G.B.	*Power Jets, Ltd. Reorganisation.* (Inter. Avia. No. 918-919, 11/5/44, p. 12.)
527	26254	U.S.A. ...	*U.S. Aircraft Production Figures for April, 1944.* (Inter. Avia. Nos. 918-919, 11/5/44, p. 19.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
528	26335	U.S.A. ...	*Here are Your Markets* (*Survey of Markets for Industry Population Figures, Airports, etc. of Individual States—Part I.* (J. Foster, Aviation, Vol. 43, No. 5, May, 1944, pp. 110-115.)
			Research and Training.
529	25827	G.B.	*The School Leaving Age* (*Advantages of Acquiring a Craft Early in Life with Particular Reference to Instrument Making*). (F. Furgman, Engineer, Vol. 178, No. 4,619, 21/7/44, pp. 46-47, 48.)
530	25831	G.B.	*Training for the Metallurgical Industries* (*Birmid Industries, Ltd.*). (Engineer, Vol. 178, No. 4,619, 21/7/44, p. 52.)
531	25855	U.S.A. ...	*Metallurgical Education in G.B.* (Metal Progress, Vol. 45, No. 5, May, 1944, pp. 938, 946, 950.)
532	25879	G.B.	*Training for Industry* (*Apprenticeship Scheme of Birmid Industries, Ltd.*). (Metal Industry, Vol. 65, No. 3, 21/7/44, p. 33.)
533	25889	U.S.A. ...	*Technology as a Multiplier of our Natural Resources.* (R. E. Wilson, Ind. and Eng. Chemistry (News Edition), 25th May, 1944, pp. 784-787, 866.)
534	25943	U.S.A. ...	*The Unwritten Laws of Engineering, Part 2—Relating Chiefly to Engineering Executives.* (W. T. King, Mechanical Engineering, p. 398.)
535	25944	U.S.A. ...	*Engineering Education After the War* ((*Report of the S.P.E.E.*). (Mechanical Engineering, pp. 403-412.)
536	26090	G.B.	*Technical Education—Scope and Organisation of De Havilland School.* (Flight, Vol. 46, No. 1,857, July 27, 1944, p. 95.)
537	26116	G.B.	*Birmingham Civic Centre. The Work of the Architect and the Engineer on a Present-day Building Scheme.* (T. C. Howitt and H. J. Manzoni, Journal of the Institution of Civil Engineers, Vol. 22, No. 7, May, 1944, pp. 186-222.)
538	26127	G.B.	*The Training of Craftsmen for the Optical Instrument Industry.* (F. Tayman, Journal of Sci. Instruments Vol. 21, No. 6, 4/7/44, pp. 93-97.)
539	26203	U.S.A. ...	*American Helicopter Research* (*Rotawing Inc.*). (Inter Avia. Nos. 920-921, 20/5/44, p. 13.)
540	26339	U.S.A. ...	*Keying Market Research to the Aircraft Industry.* (E. E. Lothrop, Aviation, Vol. 43, No. 5, May, 1944, pp. 124, 255-263.)
541	26355	U.S.A. ...	*Review of S.A.E. Papers at National Aeronautic Meeting, April 5-7.* (J.S.A.E. Vol. 52, No. 5, May, 1944, pp. 17-27, 45-50.)
			Aircraft Production Methods.
542	25822	G.B.	*Aero Engine Production* (*Address to Inst. Mech. Eng. April 21st, 1944*). (E. Fairbrother, Aircraft Engineering, Vol. 16, No. 185, July, 1944, pp. 209-210.)
543	25850	U.S.A. ...	*Aircraft Requirement of Steel Castings.* (V. N. Krivobok, Metal Progress, Vol. 45, No. 5, May, 1944, pp. 889-891.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
544	25965	U.S.A.	...	*X-Ray Blade Inspection.* (J. L. Bach, Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 88-90.)
545	26002	U.S.A.	...	60 *m.m. Mortar Sheel Production Technique* (*Pressing Technique*). (H. M. Heckathorn, Iron Age, Vol. 153, No. 21, 25/5/44, pp. 42-44.)
546	26008	U.S.A.	...	*Annealing Aircraft Parts in Pan American Shops.* (F. K. Whiteside, Iron Age, Vol. 153, No. 21, 25/5/44, pp. 60-61, 132.)
547	26017	U.S.A.	...	*British A.E.C. Armoured Co.* (Autom. Ind. Vol. 90, No. 11, 1/6/44, p. 38.)
548	26042	U.S.A.	...	*Production Version of the Mars Flying Boat.* (Automotive Industries, Vol. 90, No. 8, 15/4/44, pp. 21, 104.)
549	26045	U.S.A.	...	*Automotive Methods to Speed Output of T-1 Bombsights* (*General Motors Crp.*). (J. Geschelin, Automotive Industries, Vol. 90, No. 8, 15/4/44, pp. 28-31, 90-94.)
550	26046	U.S.A.	...	*Repair Techniques for Salvaging Airframes.* (R. L. Schleicher, Automotive Industries, Vol. 90, No. 8, 15/4/44, pp. 32-34, 74.)
551	26058	U.S.A.	...	*Spotwelding Substitutes for Riveting on B-17 Sub-Assemblies.* (F. C. Pipher, Automotive Industries, Vol. 90, No. 2, 1st May, 1944, pp. 40, 80.)
552	26066	U.S.A.	...	*Bending Time of Aircraft Spar Caps Reduced by Induction Heating.* (E. H. Plesset and J. R. Chadwick, Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 20-21, 86.)
553	26068	U.S.A.	...	*Studebacker Production of 2½ Ton Military Trucks.* (J. Geschelin, Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 26-29.)
554	26070	U.S.A.	...	*Automatic Control and Centralized Distribution Solve Rivet Troubles* (*Glenn Martin Scheme*). (C. O. Davis, Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 30-32, 112.)
555	26071	U.S.A.	...	*Curtiss Wright Facilities for the Fabrication of Large Sections.* (J. Geschelin, Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 34-40.)
556	26133	G.B.	...	*Some Remarks on the Future of the British Aircraft Industry.* (Aeronautics, Vol. 11, No. 1, August, 1944, pp. 28-31.)
557	26245	G.B.	...	*British Aircraft Construction During* 1943 (3,000 *a month*). (Inter. Avia. Nos. 218-219, 11/5/44, p. 12.)
558	26253	U.S.A.	...	*Boeing B-29 Super Fortress Production.* (Inter Avia. Nos. 918-919, 11/5/44, p. 18.)
559	26336	U.S.A.	...	*"Packaged" Airports — Westinghouse Airport Equipment Units for Rapid Assembly.* (J. L. deCubas, Aviation, Vol. 43, No. 5, May, 1944, pp. 116, 118, 253.)
560	26342	U.S.A.	...	*From Billet to Blade— Account of the Making of Forged Aluminium Blades.* (Aviation, Vol. 43, No. 5, May, 1944, pp. 145-150.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
561	26345	U.S.A. ...	*Precision Angle Plates 'Bypass' Trigonometry (Employed by Curtiss-Wright for Laying out Compound Angles).* (Aviation, Vol. 43, No. 5, May, 1944, pp. 156-161, 263.)
562	26346	U.S.A. ...	*Analytic Geometry for Speedier Wing Lofting—Part III.* (R. W. Feeny, Aviation, Vol. 43, No. 5, May, 1944, pp. 162-165, 269.)
563	26435	G.B.	*Precision Castings for Ordnance and Aircraft* (J. D. Wolf, Metallurgia, Vol. 29, No. 172, February, 1944, p. 226.)
564	26516	G.B.	*Automatic Castings (Methods of the Midland Motor Cylinder Co.).* (Automobile Engineer, Vol. 34, No. 452, August, 1944, pp. 315-323.)
565	26524	U.S.A. ...	*Zinc Plating of Large Aircraft Structures.* (M. Sanz, Iron Age, Vol. 153, No. 24, 15/6/44, pp. 64-70.)
566	26538	U.S.A. ...	*Gear Manufacturers Approve New Standards.* (Iron Age, Vol. 153, No. 22, 1/6/44, pp. 39-61.)
567	26551	U.S.A. ...	*Improved Presses for Aircraft Sheet Metal Forming.* (R. Powell, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 86-87, 138.)
568	26606	U.S.A. ...	*Practical Standards for Surface Finish (Aero Engines, Cars).* (Dr. G. Schlesinger, Machinery, Vol. 64, No. 1,647, 4/5/44, pp. 492-494.)
569	26620	U.S.A./G.B. ...	*Data for Taper Calculations (Table of Angles, etc.).* (G. Chum, Machinery, Vol. 64, No. 1,651, 1/6/44, p. 599.)
570	26624	U.S.A. ...	*Pratt and Whitney Aero Engines and Turbo-superchargers (Methods of Production).* (Machinery, Vol. 64, No. 1,652, 8/6/44, pp. 617-620.)
571	26627	U.S.A. ...	*Carbide-tipped Reamers and Drills in Manufacture of Rifles (Springfield Armoury U.S.A.).* Machinery, Vol. 64, No. 1,652, 8/6/44, p. 630.)
572	26630	U.S.A./G.B. ...	*Templates in Aircraft Production (Bell Aircraft Corp. U.S.A.).* (Machinery, Vol. 64, No. 1,653, 15/6/43, p. 651.)
573	26636	G.B.	*Mechanised Inspection. An Interesting Conveyor System Employed at a Vickers Armstrong Factory.* (Machinery, Vol. 64, No. 1,655, 29/6/44, pp. 701-706.)
574	26641	U.S.A. ...	*A 388-Punch Press Tool Specially Designed for Punching Catwalks for the Flying Fortress.* (Machinery, Vol. 64, No. 1,655, 29/6/44, pp. 714-716.)
575	26644	G.B.	*Compregwood Airscrew Blade made by High Frequency Heating (Photograph).* (Machinery, Vol. 64, No. 1,655, 29/6/44, p. 726.)
576	26655	U.S.A. ...	*Production of the Allison Liquid-Cooled Aero-Engine* (Machinery, Vol. 65, No. 1,658, 20/7/44, pp. 57-62.)
577	26665	U.S.A./G.B. ...	*Modern Planning in an Airscrew Plant (Curtiss Wright) I.* (Machinery, Vol. 64, No. 1,659, 27/7/44, pp. 91-95.)
			Other Production Methods.
578	25954	U.S.A. ...	*Stripping Urea.* (W. H. MacHale, Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 114-115.)

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
579	25973	U.S.A.	...	*Vacuum Forming Speeds Plastics Sheet Fabrication* (*Plexiglas Sheet*). (Z. Greene, Aero Digest, Vol. 45, No. 3, 1/5/44, pp. 112-116.)
580	26004	U.S.A.	...	*Machining the Barrel for the Light Carbine* (*Carbide Tipped Tools*). (F. J. Oliver, Iron Age, Vol. 153, No. 21, 25/5/44, pp. 46-53.)
581	26006	U.S.A.	...	*Pneumatic Swagers for Tubing Perfected.* (Iron Age, Vol. 153, No. 21, 25/5/44, p. 58.)
582	26007	U.S.A.	...	*Radius Broaching of Turbine Buckets.* (Iron Age, Vol. 153, No. 21, 25/5/44, pp. 59, 132.)
583	26009	U.S.A.	...	*Production of Piston Pins and Tank Treads.* (J) Geschelin, Autom. Ind. Vol. 90, No. 11, 1/6/44, 18-21, 152.)
584	26057	U.S.A.	...	*The Prest Electrolytic Process for the Reproduction of Engineering Drawings made on Metal Applied in the Making of Blanks for the Main Frames of Erco Automatic Riveting Machine Fixtures.* (T. T. Tobin & J. T. Howard, Automotive Industries, Vol. 90, No. 2, May, 1944, p. p36-37.)
585	26064	U.S.A.	...	*Diamond T. Production of Trucks* (*Review of Fabrication Methods*). (J. Geschelin, Automotive Industries, Vol. 90, No. 2, 1st May, 1944, pp. 18-21, 87.)
586	26067	U.S.A.	...	*Contour Forming of Extrusions and Preformed Sections by Stretching.* (J. Johnson, Automotive Industries, Vol. 90, No. 10, 15th May, 1944, pp. 22-25, 214.)
587	26123	G.B.	...	*Planned Mould Maintenance Service Aids Economical Production—Part III.* (W. M. Halliday, Plastics, Vol. 7, No. 86, July, 1944, pp. 331-344.)
588	26161	G.B.	...	*The Application of Electronic Control in the Steel Industry.* (E. H. Vedder, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,362-1,364.)
589	26222	U.S.A.	...	*Manufacture of Homogeneous Armor Both Cast and Rolled.* (D. O. Davis, Metal Progress, Vol. 45, No. 6, June, 1944, pp. 1,081-1,087.)
590	26381	U.S.A.	...	*Nitration of Toluene* (*Continuous Partial Pressure using Nitric Acid Alone.* (D. F. Othmer, H. L. Kleinhaus, Jr., Ind. and Eng. Chem. (Industrial Edition), Vol. 36, No. 5, May, 1944, pp. 447-451.)
591	26401	U.S.A.	...	*Production of Helium in U.S. A.* (*Photographs Only*). (Ind and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/6/44, pp. 926-927.)
592	26470	G.B.	...	*The Brisch System of Decimal Classification in Production.* (R. Hammond, The Engineer, Vol. 178, No. 4,622, 11/8/44, p. 109.)
593	26471	G.B.	...	*Mechanical Handling in Foundries, IV.* (The Engineer, Vol. 178, No. 4,622, 11/8/44, pp. 109-112.)
594	26532	U.S.A.	...	*Carbine Sight Made from Brazed Stampings.* (Iron Age, Vol. 153, No. 22, 1/6/44, pp. 47-137.)
595	26605	G.B.	...	*The Design of Stampings for Quantity Production.* (Machinery, Vol. 64, No. 1647,, 4/5/44, pp. 487-491.)
596	26615	G.B.	...	*Screw-Thread Revision* (*Correspondence*). (I. Cohen-Machinery, Vol. 64, No. 1,650, 25/5/44, pp. 574, 575.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
597	26616	G.B.	*Closely-Spaced Holes in Small Disc.* (Machinery, Vol. 64, No. 1,650, 25/5/44, p. 575.)
598	26619	U.S.A./G.B. ...	*Precision Thread Rolling with Flat and Cylindrical Dies. High Production, Increased Tensile Strength and Superior Surface.* (Machinery, Vol. 64, No. 1,651, 1/6/44, pp. 589-598.)
599	26638	G.B.	*Gauging Web Thickness in a Bore.* (Machinery, Vol. 64, No. 1,655, 29/6/44, p. 707.)
600	26651	Germany ...	*The Future of Enemy Machine Tools and the German Machine Tool Industry (Correspondence).* (J. R. Greenwood and Others, Machinery, Vol. 64, No. 1,656, 6/7/44.)
601	26656	G.B.	*Punching on the Centre Line of Strip of Varying Width Stock Guides with Automatic Adjustment* (Machinery, Vol. 65, No. 1,658, 20/7/44, p. 63.)
602	26657	G.B.	*Design of Stampings for Quantity Production.* (Machinery, Vol. 65, No. 1,658, 20/7/44, pp. 65-68.)
603	26658	G.B.	*The Production of High Speed Quiet Running Helical Gears.* (S. A. Cowling, Machinery, Vol. 65, No. 1,658, 20/7/43, pp. 69-71.)
604	26663	G.B.	*The Future of Enemy Machine Tools and the German Machine Tool Industry (Correspondence).* (W. Langford and Others, Machinery, Vol. 65, No. 1,658, 20/7/44, pp. 75-76.)
			Plant Equipment and Tools.
605	25846	U.S.A. ...	*New Vibration Fatigue Tester for Assemblies up to 10lb.* (The Review of Scientific Instruments, Vol. 15, No. 4, April, 1944, p. 110.)
606	25872	G.B.	*Junkers Deburring Device.* (Metal Industry, Vol. 65, No. 3, 21/7/44, p. 36.)
607	25875	G.B.	*Laboratory Induction Furnace.* (Metal Industry, Vol. 65, No. 3, 21/7/44, p. 41.)
608	25993	U.S.A. ...	*Hydraulic Device Improves Stretch Forming.* (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 106-10 .)
609	26021	U.S.A. ...	*Legimeter for Pre-determining Whether Drawings will Reproduce Satisfactorily.* (Autom. Ind. Vol. 90, No. 11, 1/6/44, p. 34.)
610	26024	U.S.A. ...	*Anderson Aluminium Forge Plant.* (J. Geschelin, Autom. Ind. Vol. 90, No. 12, 15/6/44, pp. 22-25, 102.)
611	26056	U.S.A. ...	*Proof-Loading Machines for Testing Flash-Welded Control Rods.* (W. Johnson, Automotive Industries, Vol. 90, No. 2, May, 1944, pp. 35, 152.)
612	26079	G.B.	*Rotary Timing Switch for Process Work.* (Engineering, Vol. 158, No. 4,098 July, 28 1944, p. 66.)
613	26115	G.B.	*Machinery and Plant in Connection with Civil Engineering Construction.* (Sir George M. Burt, Journal of the Institution of Civil Engineers, Vol. 22, No. 7, May, 1944, pp. 128-152.)
614	26276	G.B.	10-20 *Ton Welding Manipulators.* (The Engineer, Vol. 178, No. 4621, 4th August, 1944, p. 83.)
615	26367	G.B.	*Glass-Processing Machines for Lamp and Valve Manufacture.* (Engineering, Vol. 158, No. 4099, 4/8/44, pp. 85-87, 90.)

ITEM NO.	R.T.P REF.		TITLE AND JOURNAL.
616	26541	U.S.A. ...	*Simple Gadget for Scribing Circular Parts without Centre Sections* (*Radial Scratch Gauge*). (Iron Age, Vol. 153, No. 22, 1/6/44, p. 116.)
617	26555	U.S.A. ...	*Redesigned Fixtures Afford Considerable Savings* (*Use of 'Compreg' for Jigs and Fixtures*). (S. S. Armstrong and Others, Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 100-102.)
618	26564	U.S.A. ...	*New Photo-Template Scaling Gage* (*Replaces Trammel Gages*). (Aero Digest, Vol. 45, No. 6, 15/6/44, pp. 209-211.)
619	26628	G.B.	*Inspection without Gauges. A Rapid Method of Checking Components* (*Use of Hilger Projector.*) (Machinery, Vol. 64, No. 1,652, 8/6/44, pp. 631-632.)
620	26637	G.B.	*Application of Extension Rods to Jigs and Fixtures.* (R. Baird, Machinery, Vol. 64, No. 1,655, 29/6/44, p. 706.)
621	26640	G.B.	*Indexing Fixture for Milling Dogs.* (Machinery, Vol. 64, No. 1,655, 29/6/44, p. 713.)
622	26661	G.B.	*Reversible Jig Foot for Angular Holes.* (Machinery Vol. 65, No. 1,658, 20/7/44, p. 73.)
			Workers' Welfare.
623	25890	U.S.A. ...	*Professional Workers in War and Peace* (*An Analysis of the Economic Status of the Members of the American Chemical Society*, 1941-1943). (A. Fraser, Ind. and Eng. Chemistry (News Edition), Vol. 22, No. 10, 25th May, 1944, pp. 791-803.)
624	25916	G.B.	*Industrial Psychology.* (Engineering, Vol. 158, No. 4097, 21/7/44, p. 52.)
625	26170	G.B.	*The Function of Decoration in Industry* (*Lighting—Colour, etc.*). (J. H. Nelson, Sheet Metal Industry, Vol. 20, No. 208, August, 1944, pp. 1,415-1,420.)
626	26263	G.B.	*Industrial Fire Risks* (*with Extensive Bibliography*). (W. F. Cooper & F. H. Mann, J. Inst. Electrical Engineers (Part I), Vol. 91, No. 43, July, 1944, pp. 267-285.)
627	26617	G.B.	*Maxium, A Coolant for Preventing Fires in Working Magnesium.* (Machinery, Vol. 64, No. 1,650, 25/5/44, pp. 579-580.)
628	26660	G.B.	*Air-Gun Deflecting Plate for Eye Protection* (*Compressed Air in Factories*). (W. H. Page, Machinery, Vol. 65, No. 1,658, 20/7/44, p. 73.)
629	26734	G.B.	*Deaf Workers in Industry* (*Building of Small Electric Generators*). (Production and Engineering Bulletin Vol. 3, No. 20, July, 1944, pp. 306-309.)
			Packaging.
630	25947	U.S.A. ...	*British War Packing Code and Practice.* (Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 72-76, 148.)
631	25948	U.S.A. ...	*Rehabilitation of Shipping Containers.* (Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 77-79.)
632	25953	U.S.A. ...	*Penetration of Packaging Materials by Insects.* (E. O. Essig and Others, Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 109-113.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
633	25955	U.S.A. ...	*Recent Developments in Packaging and Storing of Dehydrated Foods.* (L. Newman and Others, Modern Packaging, Vol. 17, No. 11, July, 1944, pp. 116-118.)
634	25998	U.S.A. ...	*Packaging Material for Machine Parts* (*Plastic Material*). (Aero Digest, Vol. 45, No. 2, 1/5/44, p. 149.)
635	25999	U.S.A. ...	*Speed Packing Manual for War Material.* (Aero Digest, Vol. 45, No. 2, 1/5/44, pp. 161-162.)
636	26275	G.B.	*British Standard Packaging Code—Corrosion Prevention.* (The Engineer, Vol. 178, No. 4,621, August 4th, 1944, p. 83.)
637	26402	U.S.A. ...	*Packaging.* (R. W. Leaky, Ind. and Eng. Chem. (News Edition), Vol. 22, No. 11, 10/6/44, pp. 940-945.)

ROAD AND RAIL TRANSPORT.

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638	25913	G.B.	*Track-Laying Vehicle Design—II.* (E. G. Fiegehen, Engineering, Vol. 158, No. 4,097, 21/7/44, pp. 43-44.)
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